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Conservation Consultants, Inc, Palmetto, FL

Prepared for

Environmental Protection Agency, Atlanta, GA Region IV

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Environmental Impact Statement

DRAFT

Estech General Chemicals Corporation
Duette Mine
Manatee County, Florida

AIR QUALITY

RESOURCE DOCUMENT

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The Draft Environmental Impact Statement for the Estech General Chemicals (formerly Swift Agricultural Chemical) Duette Mine is enclosed for your review and comment. The document has been prepared pursuant to Section 102(2)(C) of the National Environmental Policy Act (NEPA) (Public Law 91-190) and applicable EPA regulations at 40 CFR Part 6.9. Thirteen volumes of resource document were also prepared. These resource documents comprise the detailed technical evaluations of the alternatives and the proposed action and contain supporting data related to the Draft EIS. While the Draft EIS is a complete document.

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Draft Environmental Impact Statement

Swift Agricultural Chemicals Corporation
Duette Mine Site
Manatee County, Florida

October, 1979

Prepared for:

U.S. ENVIRONMENTAL PROTECTION AGENCY
Region IV
345 Courtland Street, N.E.
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NOTE:

Effective August 1, 1979, Swift Agricultural Chemicals Corporation changed its name to Estech General Chemicals Corporation.

The preparation of the Draft Environmental Impact Statement was substantially completed at the time of the name change. Therefore, the name of Swift Agricultural Chemicals Corporation (Swift) is used throughout the Draft Environmental Impact Statement and all attendant Resource Documents.

AIR QUALITY RESOURCE DOCEMENT

1. INTRODUCTION

1.1 Source and Emissions Descriptions

The proposed mining activity may be expected to contribute both primary and secondary air quality effects. Primary effects will be contributed by the two year period of construction and approximate 20 year life of the available phosphate deposit. Secondary effects will be contributed by population, commercial, and industrial development induced by the proposed project. → The following topics [illegible]

Air pollution emissions during the construction period are varied and include increased contributions of natural soil dusts which are produced by disturbance of the land surface. Such emissions are characteristically similar to natural and agricultural emissions of the preconstruction period. Other pollutant sources are construction machinery and vehicles, and the resulting emissions are products of fuel combustion.

Operating emissions are primarily related to the phosphate rock drying, storage and loading operations, but also include fugitive dust contributions from land clearing and reclamation activities. The dust contribution is near identical in character to construction emissions except that the dusts originate from different geologic strata. Primary emissions from the rock dryers and associated facilities are very fine clay and phosphate rock dusts and by-products of the combustion of fuel oil, e.g., sulfur dioxide, nitrogen oxides, and carbon monoxide. Control of these emissions is achieved by confining and collecting the pollutant gases and passing them through collection devices.

As the combined emissions are sufficient to qualify the proposed mine as a major emitting source, the source is subject to Prevention of Significant Deterioration (PSD) regulations. The regulations require preconstruction monitoring of pollutant levels, application of Best Available Control Technology (BACT), and control of emissions to insure that PSD concentration increments are not exceeded. This analysis of project air quality examined environmental impact in a manner consistent with the Prevention of Significant Deterioration objectives and includes the results of preconstruction monitoring efforts, control equipment selection, and mathematical modeling exercises to project future air quality conditions and effects of the proposed development.

1.2 Relationship with Areawide Central Florida FEIS

The proposed action received a broad environmental review in the Areawide Central Florida Phosphate Industry FEIS (EPA, 1978A). This impact analysis defined the proposed action as permitting existing and new sources with incorporation of process modifications.

One modification upon which impacts were based was chemical processing of wet, rather dry rock within the seven county study area. However, for the portion of rock processed within the region, fertilizer plant modifications will require considerable time and capital expenditure. For some fertilizer processes, technical feasibility of the assumed modification remains questionable. The definition of the proposed action did not presuppose that rock exported from the seven county area would also be subjected to wet processing. Hence, there would be a reduction in the quantity of rock dried over an extended period of time and not necessarily a total elimination of the phosphate rock drying process.

The proposed facility reflects the assumed direction of events by shipment of a portion of production capacity to a wet rock processing facility within the FEIS study area, but is also committed to shipments of dry product.

Since the FEIS study was undertaken, important study assumptions relative to air quality were mitigated by a significant action of the U. S. Congress. The Clean Air Act Amendments of 1977 required the application of Best Available Control Technology (BACT) to all significant sources and source modifications which had potential to deteriorate air quality. Air quality effects consequential to the FEIS proposed action were based upon greater allowable source emission rates than would subsequently be permitted by U. S. EPA Prevention of Significant Deterioration (PSD) Regulations. For example, study assumptions for particulate matter were limited by allowable emission rates provided in the Florida Administrative Code (F.A.C. 17-2.05, 2, Process Weight Table). This rule would permit particulate emissions substantially greater than allowed under the PSD Regulations. A conclusion of the FEIS proposed action was that the phosphate industry pollutant contribution would remain relatively constant after 1977. Provided that the mining rates were not dramatically increased, the PSD Regulations suggest that the pollutant contributions should decrease as new processing facilities are constructed and older less efficient control equipment is abandoned and replaced with new technology.

An implied assumption of the FEIS proposed action was that air quality would tend to seek levels within the national standards in a relatively uncontrolled fashion, and that clean air areas might be substantially degraded as mining activities moved toward the South. By establishing maximum increments of allowable deterioration the PSD Regulations effectively restrict availability of the air resource. Once the available resource is consumed by competing interests, no significant additional source effect can be permitted without a corresponding reduction in effect from another source. Thus, the objective of the FEIS proposed action has been achieved with an alternate, enforceable and pervasive system of air quality controls that exert influence over all major source contributions, rather than the contributions of only one industrial sector.

2. METHODOLOGY

Analysis of the proposed facility was separated into two major subcategories of temporary (construction-related) and operational (mining-related) activities for convenience of both analysis and discussion.

2.1 Temporary Impacts

Temporary Impacts are related to the two year facilities construction schedule and will vary both in character and quantity depending on type and intensity of construction activity. Pollutant emission rates were estimated for the project construction phase as an element of the state regional planning approval process (DRI, 1978). The estimates were prepared using the AP-42 EPA Compilation of Emission Factors (EPA, 1973) as a recognized uniform source of emission factors for the various construction activities planned. Being generalized in nature, the estimates for individual activities may include some inaccuracies. However as a group, they are considered to provide a reasonable projection of total pollutant emissions accompanying construction of a major project as proposed in this action.

Prevention of Significant Deterioration (PSD) Regulations generally provide for exclusion of temporary construction emissions from consumption of PSD increment. However, for the proposed development, maximum annual pollutant emissions were determined from daily estimates and all were found to be well below the PSD general emission criterion of 250 tons per year. The construction emission estimates also enabled comparison with modeled operating emissions to assure that ambient standards would not be adversely affected during the construction period.

2.2 Plant Operation Impacts

Primary operating emissions include particulate matter relating to the rock drying, storage, and loadout operations, and fugitive dust contributions from both land clearing and reclamation activities. Other significant emissions are by-products of both internal and external combustion of fuel oils and include sulfur dioxide, nitrogen oxides, and carbon monoxide.

Particulate Matter - Emissions of particulate matter from rock drying-related operations are in excess of 100 tons per year and the controlled emissions are projected to be in excess of 50 ton per year. This fact establishes the proposed operation as a major source of particulate matter emissions defined under the Prevention of Significant Deterioration (PSD) Regulations. Major source status requires that a complete Air Quality Review be performed to quantify both PSD increment consumption and conformance to federal air quality standards (NAAQS). For the case of particulate matter, the analysis of air quality effects was confined to stationary source emissions. Reasons for exclusion of non-stationary emissions include regulatory provisions for the exclusion of natural fugitive dusts from the review, spatial variability of the emissions with time, and certain physical characteristics of the emissions which are discussed in more detail in the next section.

The following information was developed to complete the required Air Quality Review.

Proposed Particulate Matter Emissions: Proposed source emissions of particulate matter were computed from allowable emission rates included in draft Best Available Control Technology (BACT) applications (BACT, 1979), manufacturers' design/performance data, and proposed operating parameters included in draft PSD construction permit applications (PERMITS, 1979). These allowable source emissions were added to an inventory of surrounding stationary source emissions for completion of other portions of the air quality review.

1977 Particulate Matter Baseline: The 1977 Baseline was constructed by preparation of an emissions inventory describing actual source emissions as of the date of passage of the 1977 Clean Air Act Amendments (August 7, 1977) with appropriate adjustment for increment consuming sources (constructed after January 6, 1975). The inventory comprised approximately 275 sources in Hillsborough, Polk, Manatee, Sarasota, and Hardee Counties. As the total number of sources in the area of interest were significantly greater than 275, a set of source selection criteria were used to make the inventory and modeling effort more manageable. The final inventory included all sources within a 30 kilometer radius and all sources emitting greater than 50 ton per year of particulate matter extending to a 50 kilometer radius. Smaller sources were treated as adding with predominating natural fugitive emissions to form the background pollutant concentration.

A second element of Baseline information was a thorough analysis of Total Suspended Particulate data gathered as part of a preconstruction monitoring program. These data were used to check preconstruction air quality against ambient standards and to develop estimates of short and long term background concentrations.

The 1977 inventory was used to generate annual and short-term (24-hour) estimates of 1977 Baseline stationary source particulate matter contributions using the AQDM and PTMTP-W air quality models. Baseline contributions were estimated for maximum property boundary locations, locations of "worst case" impact irrespective of property limits and other points of interest. AQDM estimates were prepared from the latest available 5 year meteorological summary (Star program, 1969-73) and PTMTP-W estimates were prepared using "worst case" meteorology developed from the CRSTER program (TD-1440) for the period 1970-74. "Worst case" meteorology corresponded with the day on which the proposed source combined with interacting increment-consuming sources to produce highest, second highest contributions at two primary points of interest. (Note: the 24-hour baseline at other locations, e.g., population centers, etc., would be dependent on source/receptor geographical relationships and accompanying meteorological patterns, and does not enable a "worst case" ambient level projection.) 1977 Baseline values were computed by addition of source contributions to a background concentration determined from measurements at the site.

PSD Increment Consumption: A source inventory of allowable emissions for 33 increment consuming sources was prepared.

Long-term increment consumption was determined for property boundaries, the point of maximum combined source effect, and other points of interest by computation. The increment-consuming source contributions were extracted from post construction (1982) AQDM source contribution listings for user specified receptors. (Note: inasmuch as the concentration gradient is very slight in the proposed mine area, relatively little error in the increment consumer maximum point location is introduced by this modeling simplification.)

Directional "worst case" meteorology output by the CRSTER model for 1970-1974 was used in conjunction with the PTMTP-W model to estimate short-term

(24-hour) increment consumption. "Worst case" meteorology was developed and examined for approximate distances which maximized upwind source effects and proposed source effects, and for distances which maximized effect at the property boundary and the maximum point irrespective of property boundary. The applicable "worst case" from this array of "worst case" meteorologies was used to project increment consumption at the property boundary and point of maximum effect irrespective of property boundary.

The effect of upwind source groupings was treated by determination of a line of maximum impact through upwind sources of similar geographic location. The line was determined using the PTMTP-W model with the source group as input. Representative worst day, worst hour CRSTER meteorology was rotated through the source group to determine the wind direction which produced highest concentration.

Post Construction (1982) Air Quality: A projection of the first year of operation (1982) annual and short-term air quality was prepared for comparison with the state and national standards (NAAQS) for particulate matter. The inventory used for the 1982 projection relied upon either allowable emissions or growth projections developed from a study of area emissions performed for EPA (PEDCo, 1977). The growth projection scheme was applied because production capacity of most sources is limited by factors other than regulated air pollutant emissions. Many sources do not have the potential to attain emission rates allowed by state process weight regulations without some modification of existing Operation Permits. An exception to the growth projection scheme was electrical power facilities which were estimated at 100 percent allowable for both annual and short-term analysis. Annual and short-term 1982 source contributions were projected for maximum property boundary locations and locations of worst impact by the same methods used for increment consumers except that source inventories were significantly expanded. Post construction air quality was determined by addition of source contributions to background levels determined from measurements at the site.

Sulfur Dioxide - The projected total project emission of sulfur dioxide is less than 50 tons per year, and would ordinarily allow a reduced level of review under current regulations. However, since the annual rate was very close to the 50 tons per year limit, sulfur dioxide emissions were subjected to a screening level of analysis. The approach used was more sophisticated than the Guidelines for Air Quality Maintenance Planning and Analysis, Volume 10 (Revised), Procedures for Evaluating Air Quality Impact of New Stationary Sources (EPA, 1977), and considered sufficient to expose any possible need for a more detailed modeling analysis of Sulfur Dioxide effects.

Proposed Emissions: The greatest portion of sulfur dioxide emissions are contributed by the rock dryers and small package boiler, however, there are additional contributions from non-stationary diesel equipment used for land clearing and reclamation (see Table 4-A). The non-stationary emissions will originate from several and spacially variable areas of activity within the sixteen plus square miles enclosed by the mine boundaries. Effects of such emissions are extremely difficult to estimate and can only be treated by the use of simplifying assumptions.

Measured Sulfur Dioxide Baseline: An approximate baseline for 24-hour and annual averaging times was constructed from an analysis of sulfur dioxide measurements conducted at the site for a period of approximately one year. This time period conforms closely with the August 7, 1977 Baseline defined in PSD regulations, however, it also includes the effect of increment consuming sources which would ordinarily not be a part of the 1977 Baseline. The measured air quality baseline, however, is still of some practical use for evaluating future compliance with ambient air quality standards (NAAQS).

Source PSD Increment Consumption: In principle, proposed source contributions to annual sulfur dioxide concentrations were determined by use of a factor of proportionality between sulfur dioxide emissions and nitrogen oxide emissions. These factors were then applied to modeled AQDM nitrogen oxide concentrations to determine corresponding sulfur dioxide concentrations. For computational convenience, the portion of the sulfur dioxide emissions contributed by non-stationary sources (e.g., earthmoving equipment, diesel trucks, etc.) was assumed as an area source approximated by several virtual point sources. The area source size was equivalent to one year of mining acitivity and the area was located along a property boundary where maximum stationary source effect would occur. Short-term analysis was performed using the PTMTP-W computer code with worst case (highest, second highest) CRSTER meterology developed for the particulate matter analysis. For convenience, non-stationary emissions were assumed to be a virtual point source at the location of dry rock loadout stations. The short-term virtual point source assumption tends to superimpose and maximize downwind effect of these spacially separated activities.

The relationship with increment consumption was evaluated on the basis of preconstruction air quality measurements at the site which included the existing effect of all sources. This approach was based upon the reasoning that if all existing sources plus the proposed source did not exceed the allowable increment, then the relatively small fraction of sources defined as increment consumers would not reasonably contribute to future exceedance of the allowable Class II PSD increments.

Conformance to NAAQS: Potential for exceedance of NAAQS was evaluated by addition of the proposed source effect to the measured baseline. Since the PSD regulations will tend to prevent any substantial increase in future pollutant concentrations, the existence of a substantial margin, e.g., greater than 50 percent of the standard, with the new source in operation was considered to adequately demonstrate conformance with NAAQS.

Nitrogen Oxides - The total project emission of nitrogen oxides is estimated to exceed 100 tons per year and the PSD regulations require a demonstration that the ambient air quality standards (NAAQS) will not be exceeded if the source is constructed. An analysis of proposed source effect was examined using the AQDM analysis described above for analysis of annual sulfur dioxide effects.

Proposed Emissions: The major portion of nitrogen oxide emissions are contributed by stationary external combustion processes in the rock dryers and small package industrial boiler (see Section 4). However, a significant quantity of nitrogen oxides are also contributed by non-stationary diesel machinery, e.g., railroad locomotives, trucks, and earthmoving equipment. The non-stationary emissions will originate from several distinctly separate areas of activity, e.g., land clearing, reclamation, etc., in a manner identical to non-stationary emissions of other pollutants, but are distinct in that they will exhibit fairly rapid conversion to other pollutant forms by various atmospheric photochemical reaction processes. Effects of these individually small and spacially variable emissions can only be evaluated by simplifying approximations.

Nitrogen Oxides Baseline: The analysis of potential nitrogen dioxide effect relied partially on measurements of nitrogen dioxide conducted at a location approximately 6 miles (9.5 kilometers) west of the proposed 16+ square mile site (about half the distance to the FP&L Manatee electric power generating station). Since some anomolous differences were observed in sulfur dioxide measurements between the nitrogen oxide measurement site and the proposed mine site, the measurements were only considered reflective of generally low nitrogen dioxide concentrations in the area surrounding the point of measurement. On the basis of source geography, other area measurements of nitrogen dioxide, and that the remote source criteria for annual nitrogen dioxide concentration would also be satisfied, it was assumed that the annual guideline level (20 micrograms per cubic meter) could be utilized as a conservative estimate of nitrogen dioxide baseline in the area of the proposed mine (see Section 5.1 for additional discussion relating annual background and baseline levels).

Source Contribution: The source contribution to annual nitrogen oxide concentrations was determined for comparison with the PSD significance level (1 microgram per cubic meter, annual average) and NAAQS (100 micrograms per cubic meter, annual average). The estimate of source effects was performed using the AODM model with the same 1969-73 meteorological input used for other analyses. Non-stationary source emissions were estimated as an area source (i.e., virtual point source approximation) for an area equivalent to one year of mining activity (315 acres). The area source was located adjacent to the property boundary to maximize effect of diesel earthmoving equipment. Effect was evaluated for a condition with the north and south reclamation crews operating on a single tract of land. This method is considered to conservatively overestimate non-stationary source effects as diesel equipment will probably be spread over much larger areas than the area chosen for analysis, particularly when the draglines become separated by a distance of several miles.

Conformance to NAAQS: Potential for exceedance of the NAAQS was evaluated by addition of the proposed source effect to the assumed baseline concentration. Since PSD regulations will tend to prevent any substantial future increases in pollutant concentrations, the existence of a substantial margin, e.g., greater than 50 percent of the standard, with the new source in operation would be considered to adequately demonstrate conformance with NAAQS.

Additional Impact Analysis - The PSD regulations also require an analysis of impairment to visibility, adverse effect on soil and vegetation of significant commercial or recreational value, and the secondary effect of general commercial, residential, industrial and other growth associated with the proposed development.

Visibility impact was evaluated in terms of the fine particulate emissions and the water vapor plume expected to accompany dryer operations.

The presence of both soluble and insoluble fluorides in phosphate rock was the impetus for preconstruction monitoring of atmospheric and vegetative fluorides at the site. These data were reviewed, summarized to indicate baseline levels, and evaluated in terms of possible influence from existing phosphate operations to the North and Northeast of the proposed site. The character of the proposed operation and source emissions were reviewed and discussed in terms of potential for increased fluoride levels for adjoining citrus, produce, and cattle growing interests.

The potential for growth in other sectors that would contribute secondary degradation of air quality were considered in terms of employment and commercial needs of the proposed project. Impacts were predicated on historical attitudes of the area labor force and support services.

3. POLLUTANT CONTROL SYSTEMS

The pollutant control systems discussed below are the primary mitigative measures to be applied to air pollutants generated by the proposed activity.

3.1 System Selection - Rock Dryer

Constraints imposed by Prevention of Significant Degradation (PSD) and Best Available Control Technology (BACT) resulted in selection of wet scrubber control technology for the proposed phosphate rock dryers. This selection was influenced by a decision to remove not only particulate matter, but also a substantial quantity of sulfur dioxide that may accompany the process of drying phosphate pebble and concentrate products.

Important factors considered in the selection process included system energy requirements, capital and operating costs, projected availablitiy of low sulfur fuel oil, system capability to effectively remove both particulate and gaseous pollutants, and the character of the gases exiting the phosphate rock dryers.

As part of the BACT process, dry collection systems were also examined for this application. While fabric collectors and electrostatic precipitators could offer comparable particulate collection efficiencies, they did not offer the benefit of simultaneous collection of sulfur dioxide desired for this application. Other disadvantages of dry systems were the requirement for special materials of construction, i.e., non corrosive steels, special fabrics, etc., to guard against rapid system deterioration by corrosive pollutant gases and potential for serious operating and maintenance problems.

For the special case of fabric collectors, it was determined that the dryer exit gases would require direct fired preheating with an estimated increase in fuel consumption of 96 gallons per hour and additional sulfur dioxide, nitrogen oxides and carbon monoxide loadings. Along with preheating the wet dryer exit gases, extensive insulation and a temperature control system is required to insure against the formation of condensation and resultant catastrophic destruction (blinding) of costly fabric bags used in the collector. Expansion of the gases with increased temperature also requires that the system provide significantly greater air handling capacity. Of major significance, use of a baghouse on an oil-fired process has considerable potential to result in chronic bag blinding problems with a potential for prohibitive maintenance cost. One major supplier of fabric filter control equipment declined to submit a baghouse collector performance proposal for this reason. Another problem was determination of a suitable fabric for use in the dryer exit gases. Another major fabric filter supplier exhausted available fabric alternatives and appeared unable to offer an alternate fabric filter collector that would be practical for the application.

3.2 System Description - Rock Dryer

As discussed elsewhere in this study of the proposed facility, two fluidized bed dryers are planned for drying 262 ton per hour each (dry basis) of phosphate rock from 13 to 2 percent moisture (see Figure 3.2-1). The dryers remove (transfer) moisture by passing heated air through the fluidized bed of rock. The air is heated by combustion of fuel oil in the air stream directly before entering the fluidized bed. Larger size, heavier components of product exit the fluidized bed dryer to a product conveyor, and the smaller lighter components are carried over with

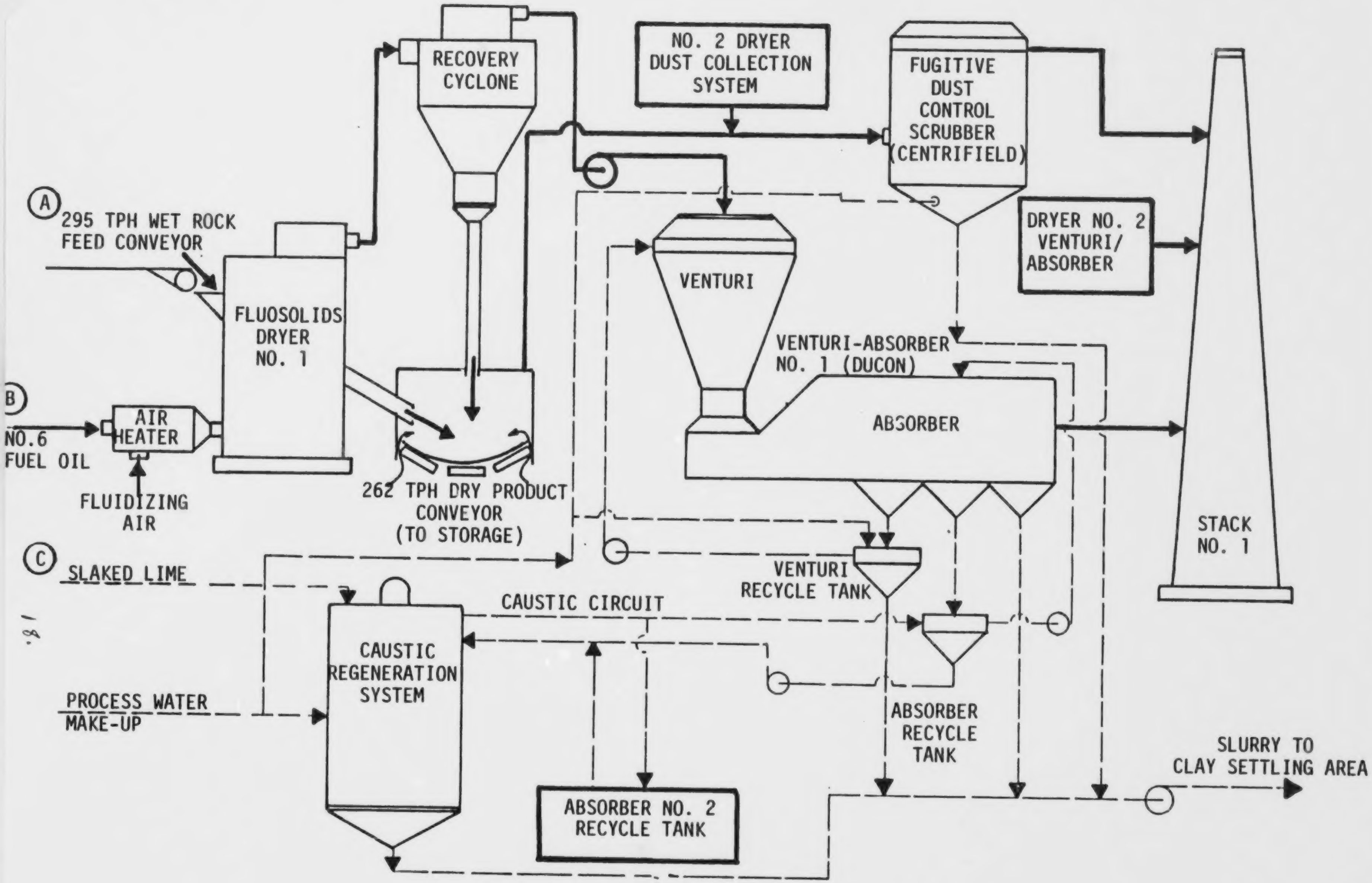

Ⓐ 295 TPH WET ROCK FEED CONVEYOR
Ⓑ NO.6 FUEL OIL
AIR HEATER
FLUIDIZING AIR
FLUOSOLIDS DRYER NO. 1
RECOVERY CYCLONE
262 TPH DRY PRODUCT CONVEYOR (TO STORAGE)
Ⓒ SLAKED LIME
PROCESS WATER MAKE-UP
CAUSTIC REGENERATION SYSTEM
CAUSTIC CIRCUIT
ABSORBER NO. 2 RECYCLE TANK
NO. 2 DRYER DUST COLLECTION SYSTEM
VENTURI
VENTURI-ABSORBER NO. 1 (DUCON)
ABSORBER
VENTURI RECYCLE TANK
ABSORBER RECYCLE TANK
FUGITIVE DUST CONTROL SCRUBBER (CENTRIFIELD)
DRYER NO. 2 VENTURI/ ABSORBER
STACK NO. 1
SLURRY TO CLAY SETTLING AREA

Figure 3.2-1 Process/Control System Flowsheet Phosphate Rock Dryers

the fluidizing air through product recovery cyclones which remove economically recoverable product from the gas stream. Product recovered by the cyclones is also discharged to the product conveyor. The remaining hot gas stream contains considerable moisture and conveys residual particulate and gaseous contaminants to the pollution control device. The contaminant laden gas is routed through a wet scrubber before exiting to the atmosphere through a stack 60 feet in height.

Pollutants in the phosphate dryer exit gas stream originate from both the phosphate rock product and fuel used to dry the rock. Two forms of particulate matter may be present — phosphate rock and clay dusts. The relative proportions of these dusts are dependent on the product form. Pebble rock typically provides the greatest proportion of fine particulate clay dust (EPA, 1978; EPA, 1973) and while pebble represents a relatively small portion of the total product processed through the drying system, the included clay particulate effectively determines control system requirements. Phosphate dust is primarily contributed by mechanical abrasion of product in the handling of wet rock fed to the dryer, and to a less significant degree by attrition in the fluidized bed drying process. Particulate matter (dusts) are removed in the wet scrubbing device by imparting sufficient energy to spray water droplets and particles so that they collide. The resultant larger, heavier water droplets containing particulate matter are more easily collected by inertial and gravitational settling and are returned to a spray liquid reservoir. Make-up water is continuously added to the reservoir and discharge water containing particulate matter is drawn from the reservoir to maintain a low solids concentration in the recycle spray water. The discharge water, a slurry of water and particles, joins with other control equipment discharges and is pumped to clay settling areas so that the water component can be recovered for reuse. The largest proportion of particles not removed in the collection device are less than 2 micron diameter size and more than one half are sub-micron sizes (EPA, 1976).

A contaminant problem associated with the particulate dusts is a radioactive component. This pollutant potential is treated fully in the radiation section of this study.

Sulfur oxides are contributed by sulfur contained in the fuel oil which is burned to dry the rock. The proportion converted to sulfur dioxide is related to sulfur concentration, combustion conditions, i.e., temperature, excess air, etc., and possibly also to the presence of trace contaminants in the fuel. Measurements conducted by SACC (SACC, 1978) suggest that a substantial portion of the sulfur dioxide is removed in the fluidized bed by suspected reactions with natural constituents in the phosphate rock, e.g., limestone. A part of the proposed system control technology will be use of low sulfur residual fuel oil containing a maximum of 1.0 percent sulfur by weight. Additional removal is a inherent benefit of a wet collection system, but in the proposed control system a reagent will be added to the spray water to substantially increase removal of sulfur oxides. The reagent will be either calcium hydroxide or a double alkali system comprising an inner, recycle loop of sodium hydroxide and a regenerative circuit of calcium hydroxide. In either case the system discharge slurry will mostly contain an insoluble calcium sulfite/sulfate precipitate so that it can be disposed with particulate matter discharges and the water also reclaimed for process use.

Nitrogen oxides are contributed both by nitrogen contained within the fuel and, to some extent, chemical combination of nitrogen and oxygen contained in air supplied to burn the fuel. Nitric oxide formation is a complex function of flame temperature/time characteristics in addition to the relative quantities of nitrogen and oxygen available to complete the reaction. Inasmuch as the dryer systems are designed for the purpose of direct air heating, an inherent control feature is a rapid quenching of the combustion gas temperature as soon as all the fuel is combusted. This temperature reduction helps to minimize nitric oxide generation. A more direct control technique will be purchase specification control of fuel nitrogen content to a maximum of 0.3 percent nitrogen by weight. Some removal is expected in the venturi-absorber control devices, possibly in the range of 10 to 20 percent, but engineering estimates of removal efficiency are not possible without experimental testing of prototype control devices by manufacturers of control equipment. Nitrogen oxides removal is a matter that has only just started to receive attention by much of the standard design or "package" wet scrubber manufacturing industry.

The relatively low temperature (230°F) at which phosphate rock is dried does not cause appreciable generation of gaseous fluoride, but it is recognized that relatively small quantities are produced. The presence of trace fluoride concentration is of chief concern for the selection of materials in control devices, e.g., potential for destruction of glass fabric filter materials. While the actual emission rate is generally considered negligable (EPA, 1978B), the proposed wet scrubber system design is optimized for collection of gaseous constituents and is expected to remove some of any gaseous fluoride that may be generated in the dryers.

3.3 System Selection - Fugitive Dust Control

The term dry rock is misleading in the respect that dry rock contains a nominal two percent moisture and is typically handled at temperatures ranging somewhat below 200°F to near the 230°F fluidized bed operating temperature. This remaining unbound two percent moisture continually evaporates from the rock during handling, storage, and loading operations and creates a problem both for material handling and associated fugitive dust collection systems. During cooler weather this moist air may condense in the system to produce blockage in the dust collection system ducts. One alternative is the addition of heat, but as discussed previously, the disadvantages are extra fuel requirements, generation of additional pollutants, e.g., sulfur dioxide, nitrogen oxides, carbon monoxide, and ash, and expansion of gas volumes which result in the need for larger capacity control devices. The need for installation of heating equipment is aptly illustrated by the experience of Gardinier at Fort Meade (CCI, 1979). Baghouses were installed to control fugitive dust emissions from storage silos and silo loading facilities. The filter bags quickly plugged with mud and were destroyed. The result of that experience was a manufacturer's recommendation that air heating equipment be installed to cure the problem, but the operator considered the cost of air heating to be so great that the entire control system was abandoned.

The proposed system plans to overcome this operating problem with design improvements and the introduction of water sprays in collection system ducts (Toalster, B. and C. D. Turley, 1977). The duct spray systems insure against collection system blockage at relatively low energy cost and effectively provide a first stage removal of particulate matter within the collection system. The combined flow of dust laden, moist gases, and spray liquid will pass through efficient wet scrubber systems to remove a high percentage of the remaining particulate matter before the gases are returned to the atmosphere through stacks. Again in this instance, moisture in the control system gases is an important factor constraining control system selection.

3.4 System Description - Fugitive Dust Control

Figures 3.4-1 and 3.4-2 are schematic layouts of the materials handling, dry rock storage and rail car loading operations. Fugitive dust control systems are proposed from the point of dry product discharge at the dryers and recovery cyclones to and including the point where product enters railroad hopper cars. Belts conveying product between intermediate transfer points will be fully enclosed to prevent wind erosion of dusts during handling. All transfer points, e.g., belt to belt, belt to hopper, etc., will be enclosed with hoods designed to prevent escape of fugitive dust by introducing proper rates of inflow air through all necessary openings in the hoods. Storage silos and loadout bins will be exhausted during loading operations to prevent any escape of fugitive dusts by air displacement. Specially designed loading spouts will be used at hopper car loading hatches with sufficient air inflow capacity to collect displaced air and to provide sufficient inflow air to prevent the escape of fugitive dusts from the hatch openings. All inflow air will be exhausted through fugitive dust collection system ducts and routed to air pollution control systems.

The fugitive dust collection and control systems will be centered at the dryers, storage silos, and railroad car loading facilities, and will

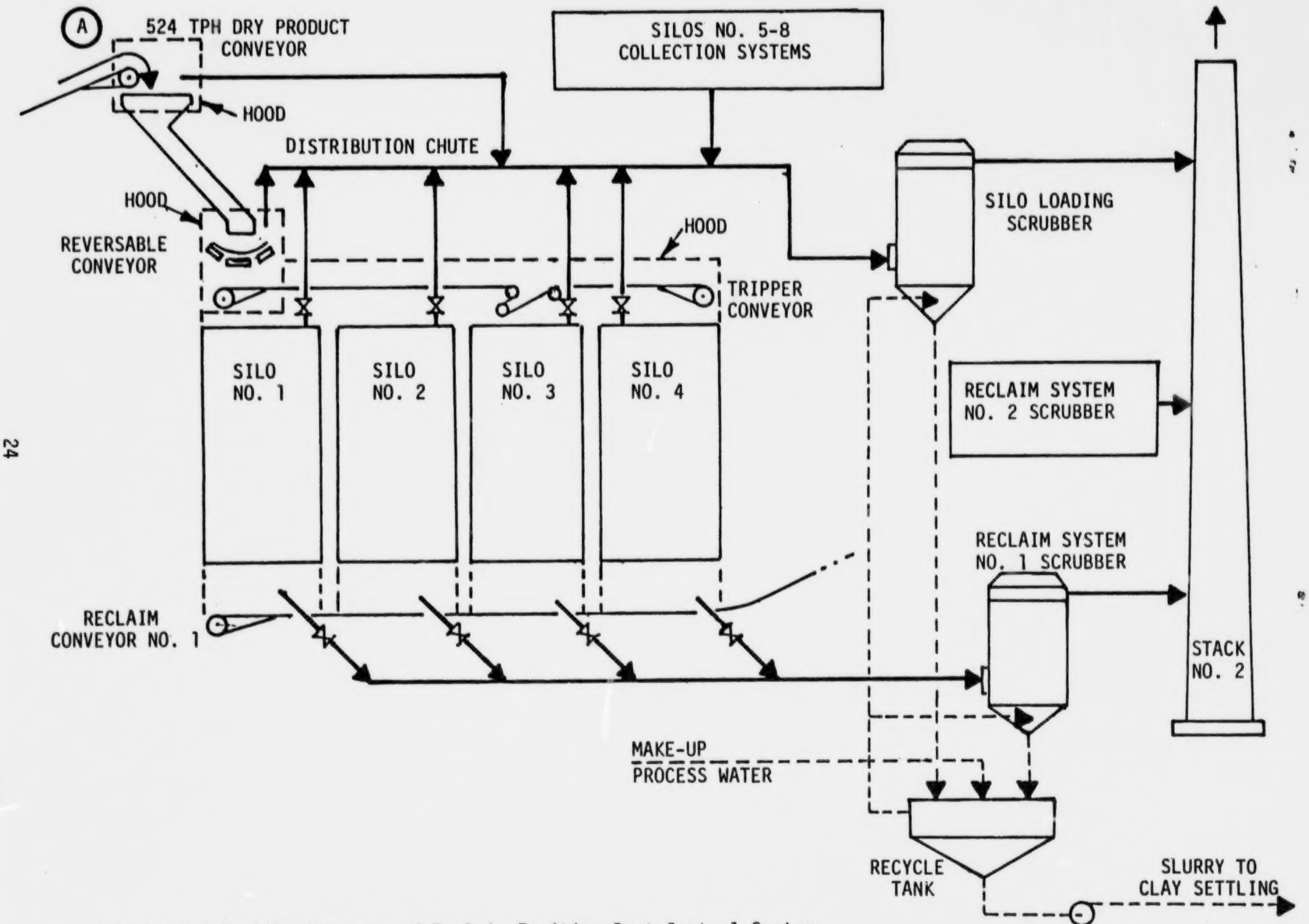
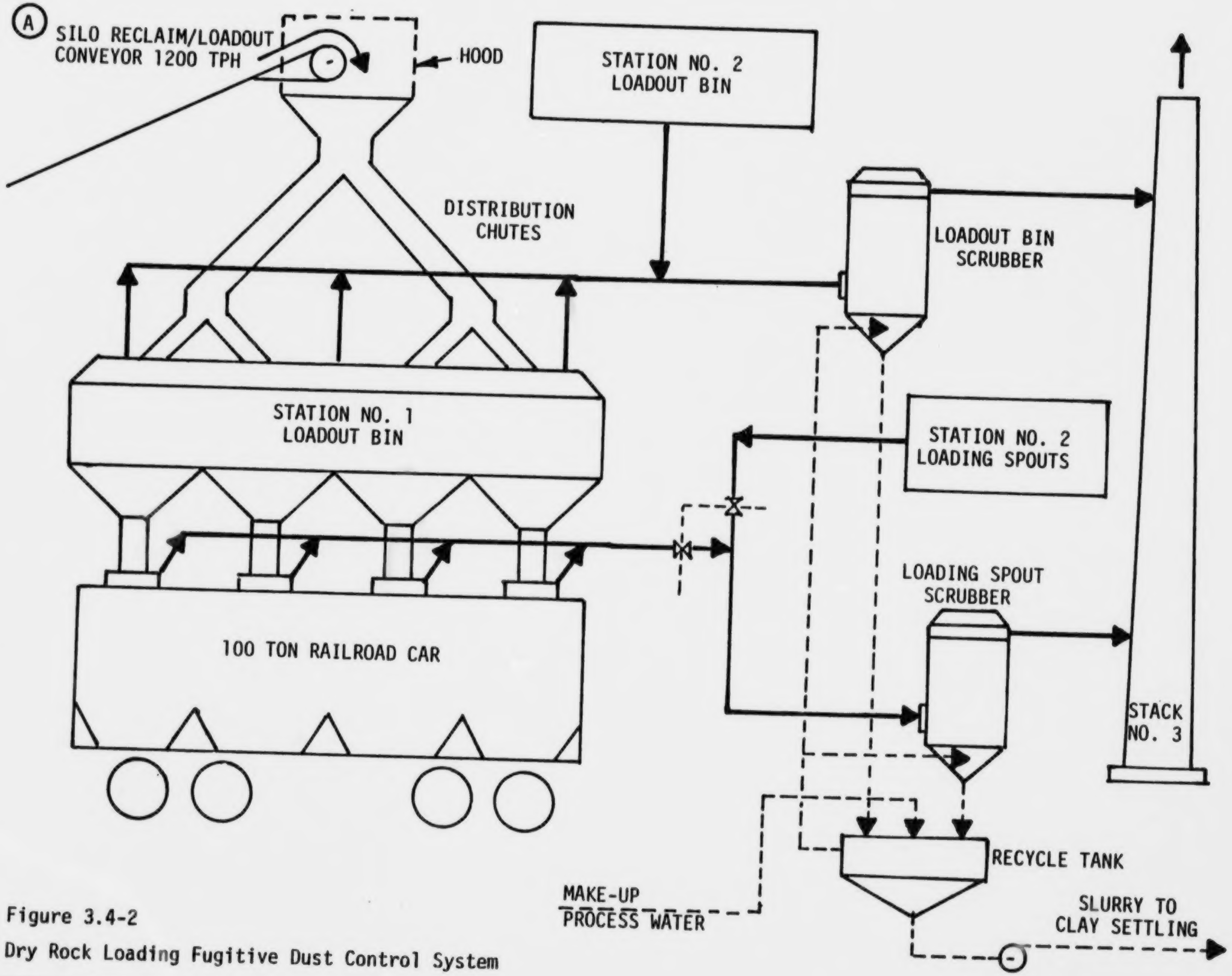

A
524 TPH DRY PRODUCT CONVEYOR
HOOD
DISTRIBUTION CHUTE
HOOD
REVERSABLE CONVEYOR
SILOS NO. 5-8 COLLECTION SYSTEMS
HOOD
TRIPPER CONVEYOR
SILO NO. 1
SILO NO. 2
SILO NO. 3
SILO NO. 4
SILO LOADING SCRUBBER
RECLAIM SYSTEM NO. 2 SCRUBBER
RECLAIM SYSTEM NO. 1 SCRUBBER
STACK NO. 2
RECLAIM CONVEYOR NO. 1
MAKE-UP PROCESS WATER
RECYCLE TANK
SLURRY TO CLAY SETTLING

Figure 3.4-1 Silo Storage and Reclaim Fugitive Dust Control Systems



A
SILO RECLAIM/LOADOUT CONVEYOR 1200 TPH
HOOD
STATION NO. 2 LOADOUT BIN
DISTRIBUTION CHUTES
LOADOUT BIN SCRUBBER
STATION NO. 1 LOADOUT BIN
STATION NO. 2 LOADING SPOUTS
LOADING SPOUT SCRUBBER
100 TON RAILROAD CAR
STACK NO. 3
RECYCLE TANK
MAKE-UP PROCESS WATER
SLURRY TO CLAY SETTLING

Figure 3.4-2

Dry Rock Loading Fugitive Dust Control System comprise a total of six wet scrubbers serving various portions of the operations. Stacks will be located at each of the major locations to exhaust cleaned air back into the atmosphere. Emissions from the fugitive dust control system will be limited to fine phosphate rock and clay particles having characteristics identical to those described in the previous section. Where water use volumes are significant, recycle spray systems will be included both to conserve water use and to minimize water supply and discharge pump energy requirements. Discharge slurries of water and particles will join with discharges from the dryers for disposal to clay settling areas and for recovery of the process water component.

3.5 Control Technology-Package Boiler

A 100 horsepower boiler is required to generate steam for heating reagent and fuel oil storage tanks and primary potential emissions are sulfur dioxide and nitrogen oxides.

The proposed unit is a relatively small boiler and while combustion control techniques are recognized, e.g., low excess air, flue gas recirculation, etc., to control nitrogen oxide emissions, application of such technology appears impractical for reasons of physical size. Instead, the proposed control method is to use low sulfur distillate fuel oil. Since the chemically bound nitrogen in low sulfur distillate fuel oil is typically a very low value, this control method combined with the routine maintenance of proper burner combustion conditions should insure the lowest practical emission of nitrogen oxides.

3.6 Control Technology - Natural Fugitive Dust Emissions

Natural fugitive dust emissions may be expected to accompany land clearing, mining and land reclamation activities. A smaller component will be contributed by relatively low volume vehicular travel over temporary, unpaved roadways which lead to these areas of activity.

Control of emissions during earthmoving operations is impractical for obvious reasons, but it is proposed that inactive, exposed soil areas will be provided with interim vegetative cover, e.g., seeded with grass, as soon as practical after mining is completed. Natural crusting of the soil surface combined with vegetative cover should minimize reentrainment of deposited fugitive dusts and tend to prevent appreciable saltation type movement to areas outside of the project boundaries. The approach to fugitive dust control on temporary mine access roadways will include water spraying during all periods when visible emissions become evident. Where practical, safe, and cost effective, dust suppressant or binder chemicals will be applied to more permanent roadway sections to maintain as near dust free surface conditions as such methods will permit.

4. EMISSION ESTIMATES

Daily estimates of temporary (construction) and plant operation (mining-related) emissions were prepared for the Development of Regional Impact/ Application for Development Approval (DRI, 1978) and some of the estimates are reproduced in Table 4-A. As the facility design has evolved and improved since submission of the DRI, revisions and corrections were completed where necessary.

Significant changes were incorporated in the Mining and Processing Phase. The changes to mining estimates are the result of a decision to bury all vegetative matter. The previous approach envisioned burning a maximum of 5 percent vegetative matter during the land clearing operation and would have resulted in a major contribution to operating carbon monoxide emissions. Changes in the dryer emissions are a result of the application of newer technology and the influence of BACT in selection of control technology. The increase in nitrogen oxides is a refinement of the estimate based upon field measurements on a similar, existing fluosolids phosphate rock dryer. Reductions in the Transportation category relate to elimination of one railroad switching engine and reduction of the overall use factor. The reductions relate to a decision to use a cable car puller to position railroad cars at the two dry rock loading stations.

Plant construction estimates comprise several elements, each a major activity period within a span of two years. As the duration of the individual elements may be only six months to one year, all values taken together display a daily worst case representation with all activities overlapping at one point in time. The plant operation estimates were developed for a typical full activity period within the early years of the mining program.

Table 4-A Project Emissions (Pounds Per Day)

Phase/Pollutant	TSP	Fugitive Dust	HC	NO$_x$	SO$_2$	CO	Gaseous Fluoride
Temporary/Construction							
Site Preparation	80	--	110	20	nil	660	--
Construction	60	550[a]	90	1,000	60	460	--
TOTAL	140	550[a]	200	1,020	60	1,120	--
Operation/Mining and Processing							
Mining	10	850[a]	11	156	77	50	--
Wet Rock Storage	--	1,350[a,b]	--	--	--	--	--
Dryers	551	nil	37[c]	1,819[d]	206	185[c]	1
Dry Rock Storage and Transport	279	nil	--	--	--	--	--
Transportation (auto/truck/R.R.)	3	--	20	46	6	108	--
TOTAL	843	2,200[a,b]	68[c]	2,021	289	343[c]	1

---

[a] Refer to text. Fugitive dust emissions include a substantial weight percent of coarse particulate matter (unlike dryer emissions) that will redeposit relatively close to the point of emission.

[b] Analysis of product particle size suggests methodology produces substantial overestimation (99.98% > 40 µm).

[c] Pollutant loadings generated by fuel combustion process for equivalent industrial boiler capacity. Reduced generation and/or removal may be expected in fluidized bed dryers and wet scrubbing devices.

[d] Based on field measurements conducted on a similar fluosolids dryer.

All values presented in Table 4-A, are best estimates based upon reasonable projections, assumptions and available computational methodologies. Where developed from projection methodologies, the individual estimates represent generalizations for similar applications under a fairly wide range of field conditions and, as such, may tend to overestimate or underestimate actual emissions for any one facility. However, taken as a group the estimates are considered to provide a best possible projection of construction and operation emissions.

Fugitive dust and TSP emissions are not directly comparable and are listed separately for that reason.

Fugitive dust emissions include a relatively large weight percentage of large diameter particulate that is not present in TSP emissions. A substantial portion of these emissions may be expected to redeposit to the ground surface relatively close to the point of emission and as the mine site encloses approximately 14,000 acres of land, much of the fugitive dust will return to undisturbed ground surface within the site. After deposition, the particulate will be subjected to various physical phenomena and exhibit resuspension characteristics not appreciably unlike natural soil particles. As such, the magnitude of these emissions may be misleading for a project of the proposed scope.

4.1 Temporary Phase Daily Emissions

The Plant Construction phase was divided into two subcategories to aid quantification and description of emissions.

Site Preparation - Site preparation includes emissions produced by land clearing operations and the limited open burning of vegetative matter. It is proposed that a maximum of five percent (5%) of the vegetative materials will be burned and the balance disposed by burial. Estimates of combustion-related emissions were developed from factors provided in the AP-42 Compilation of Emissions Factors (EPA, 1973) and estimates of proposed land clearing rates developed from mining plans.

Construction - Physical construction activities will contribute fugitive dusts and fuel combustion emissions from construction equipment and vehicles. The fugitive dust emissions relate to a combination of vehicle and construction equipment movement and wind erosion of disturbed open ground surfaces. The tabulated value for fugitive dusts is based on AP-42 construction emission factors and typical acreages of active construction.

Fuel combustion emissions account for the balance of values tabulated under the construction subcategory. These emissions include automotive vehicle, construction equipment, and railroad contributions. They were estimated using AP-42 emission factors for automobiles, construction equipment, and railroad switching engines in combination with appropriate measures of utilization, i.e., vehicle miles traveled (VMT), projected fuel consumption, etc.

4.2 Plant Operation Phase Daily Emissions

Mining and processing operations were similarly divided into manageable subcategories for estimation purposes.

Mining - The mining operation requires land clearing and produces relatively large areas of disturbed soil surface. Since generalized fugitive dust estimation methodology for mined and partially reclaimed land has not been developed because of the specialized nature of the activity, alternative estimation techniques were investigated. A factor complicating the determination of a fugitive dust contribution is the unavailability of data describing wind erosion emissions from exposed encrusted soil surfaces in contrast with naturally vegetated or agricultural land surfaces. Inasmuch as the dragline and reclamation operations may be considered a significant portion of such emissions and these activities are comparable to earthmoving associated with plant construction, the AP-42 factors for construction were applied to typical, in-process exposed ground areas.

The fuel combustion emission values tabulated under mining include emissions from earthmoving equipment at the mining and reclamation sites. Emission estimates for this equipment were developed from projections of fuel consumption and emission factors provided in AP-42. Since the draglines operate on electricity, they will not directly contribute fuel combustion emissions at the mine site.

A small 100 horsepower package industrial boiler is the only stationary pollutant source in the mining and ore beneficiation process. This boiler is required to generate steam for heating flotation reagents and fuel oil. Boiler emissions are estimated from AP-42 emission factors (EPA, 1973) and included under the mining category.

Wet Rock Storage - The matrix and phosphate rock is processed as a wet slurry throughout the beneficiation process so that the only significant potential for fugitive dust emissions is from the wet rock storage pile. These emissions relate primarily to wind erosion from the relatively dry surface of the pile. Material loaded onto the pile contains approximately thirteen percent (13%) moisture so that the stacking operation is considered to contribute very slightly to the total emissions. The tabulated value for wet rock storage was prepared from AP-42 aggregate storage pile emission factors and typical tonnages processed through the wet rock storage cycle, however, the value is considered to be a substantial overestimation of storage emissions.

Rock Drying - The proposed two 262 Ton per hour (dry basis - 2 percent moisture) rock dryers are primary sources for emission of particulate matter. Each dryer will be equipped with a wet scrubbing device to control particulate emissions in conformance with an approved Best Available Control Technology (BACT) and Prevention of Significant Deterioration (PSD) application. Emissions tabulated in Tables 4-A and 4.2-A are computed from the allowable BACT emission rate, control equipment manufacturer design/performance data, and maximum operating time factors.

It should be noted that in some instances the values listed are less than the values actually used in modeling air quality impact of the source. This difference relates to the inability of model input data requirements to accommodate daily and annual operating factors for actual plant activities. As such, some of the models tend to significantly overestimate air quality effects.

As detailed in the System Description Section, fuel oil is burned in the dryers to generate heated gas which is passed through the wet phosphate rock to remove moisture. The fuel contains sulfur which is mostly converted to sulfur dioxide during the process of combustion. As indicated in Section 3, it has been found that substantial quantities of the generated sulfur dioxide are removed from the combustion gases as they pass through

Table 4.2-A Particulate Matter Projected vs. Modeled Emission Rates

		MAXIMUM EMISSION RATES					MODEL EMISSION RATES					
							AQDM (Annual)		PTMTP-W (24-hr) and CRSTER (Annual/24-hr)			AIREM
Description	Stack	Gm/Sec	Lb/Hr	Lb/Day	Ton/Day	Ton/Yr	Ton/Day	Ton/Yr	Gm/Sec	Lb/Day	Ton/Yr	Ton/Yr
Dryers	1	2.889	22.93	550	0.275	85.36	0.234	85.36	2.889	550	100.43	85.36
Silo Storage and Reclaim	2	1.101	8.74	185	0.093	28.67	0.079	28.67	1.101	210	28.28	36.40
R.R. Car Loadout	3	0.728	5.77	92	0.046	< 11.55	0.031	11.55	0.728	139	25.31	11.54
Boiler	4	0.007	0.057	1.4	0.001	0.25	0.0001	0.25	0.007	1.4	0.25	0
TOTALS		4.725	37.50	828 +++	0.415	125.61 ******	0.344	125.61 ******	4.725	900 +++	154.27	133.30 ******

fluidized bed dryers and wet collection devices. The removals suggested that existing systems were frequently marginal with respect to an annual emission rate of 50 ton. As intended by the PSD regulation (F.R., 1978), the wet scrubbing system has been designed to specifically remove residual sulfur dioxide to a rate consistently below 32 ton per year. The controlled emissions represents a 96.5 percent reduction in comparison to the amount of sulfur dioxide that would be emitted if the same quantities of 1 percent sulfur fuel were burned in an industrial oil-fired boiler.

Fuel oil burned in the dryers contribute nitrogen oxide emissions in two ways. The fuel oil contains a small percentage of chemically bound nitrogen which is converted to nitric oxide during the combustion process. Air supplied to support combustion contains nitrogen and some of this nitrogen is also converted to nitric oxide. The contribution of nitrogen oxides was determined by AP-42 estimation methodology and field measurements performed on an existing fluosolids dryer of similar size and design. Measurements were undertaken to compare with emission estimates computed for industrial boilers of equivalent fuel (heat) input. Dryer design suggested potential for reduced generation and possibly some nitric oxide removal in the moist bed of phosphate rock. While such effect was not appreciable, the observed difference is suspected to relate to fairly rapid quenching of the flame temperatures in the dryer windbox and possibly trace reaction of nitric oxide with calcium carbonate present in the phosphate rock. However, an examination of sulfur dioxide and nitrogen oxide test results suggests that reaction with the limited calcium carbonate constituent in phosphate product is preferential for the more abundant and reactive sulfur dioxide that is present in the fluidizing gas stream.

The balance of the dryer emissions in Table 4-A were developed from AP-42 emission factors for industrial boilers of similar heat input. It should be noted that the use of boiler emission factors may produce some inaccuracies, but it is the best available estimation methodology.

Dry Rock Storage and Transfer - As described in greater detail in the fugitive dust control system description, potential fugitive dust emissions from dry rock will be controlled throughout the dry rock handling and storage process. Particulate matter emissions will be controlled with wet scrubbing devices in conformance with approved Best Available Control Technology (BACT) and Prevention of Significant Deterioration (PSD) applications. Emissions in Tables 4-A and 4.2-A are computed from the maximum allowable BACT emission rate, control equipment manufacturers design/performance data, and maximum operating time factors for the various operations included.

Transportation - Transportation emissions include all vehicular and railroad emissions related to mine operation. Estimates are based on daily vehicle miles traveled (VMT) on the mine site and switching engine fuel consumption. These estimates were combined with AP-42 emission factors to produce the tabulated values for fuel combustion emissions.

4.3 Plant Operation Emissions - Annual

Estimates of aggregate annual pollutant emissions for plant operation are displayed in Table 4.3-A. Estimates were developed from the emissions data used for preparation of Table 4-A and on expected annual operating factors for each of the activities included. Land clearing, reclamation, and railroad activities were assumed to be operational 250 days per year.

Table 4.3-A Estimated Annual Operating Emissions (tons per year)

ACTIVITY	TSP^b	HC^a	NO$_x$^{a}	SO$_2$^{b}	CO^a	F$_g$^{b}
Mining	1.3	1.6	20.4	13.5	6.4	---
Wet Rock Storage	---	---	---	---	---	---
Dryers	85.4	5.8^c	282.2	32.0	28.8^c	0.2
Dry Rock Storage and Transport	40.2	---	---	---	---	---
Transportation (auto/truck/R.R.)	0.4	3.1	6.3	0.8	18.9	---
TOTAL	127.3	10.5^c	308.9	46.3	54.1^c	0.2

a Potential Emission

b Controlled Emission

c Pollutant loading estimate based on AP-42 industrial boiler emission factors. Reduced generation, conversion and/or removal expected in fluidized bed dryer.

Vehicular activity was assumed operational 365 days per year. Dryer-related emissions were based upon maximum annual use supplied in construction permit applications (PERMITS, for each of the emitting facilities.

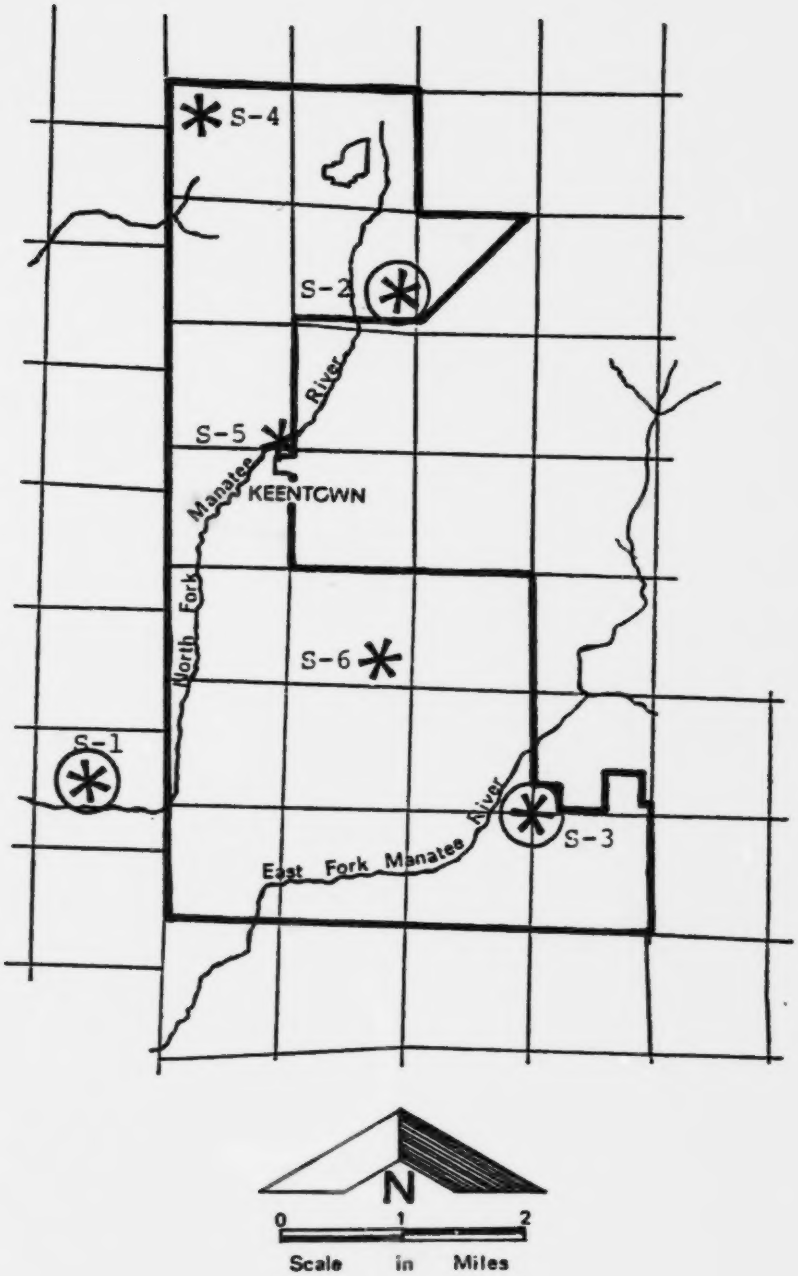
Fugitive Dust Emissions have been omitted from the annual estimates partly for reasons already discussed in Sections 2.2 and 4.0. Other than apparent reduced potential for air quality effect outside of mining site, fugitive emissions also receive different treatment in PSD regulations (F.R., 1978). While these emissions may qualify a source as a major emitting source (which is already established by stationary source emissions), there is a provision for their exclusion from the impact analysis until a satisfactory technical basis is established to accurately quantify the effects of these emissions.

5. PRECONSTRUCTION AIR QUALITY

Preconstruction air quality at the proposed project location was determined from measurements and for the case of suspended particulate, by modeling (estimation) methods in accordance with the Prevention of Significant Deterioration (PSD) regulations.

A one year measurement program commenced in the spring of 1977 and concluded in the summer of 1978 with the purpose of measuring preconstruction ambient concentrations of total suspended particulate matter (TSP), sulfur dioxide (SO_2), atmospheric fluorides (F_{atm}) and vegetative fluorides (F_{veg}). Measurement locations are indicated in Figure 5-1, and monitoring results are furnished in Appendix A.

Since the proposed emissions of particulate matter qualify the proposed activity as a major source requiring full PSD review, the regulations require determination of 1977 Baseline TSP concentrations. 1977 Baseline (preconstruction) concentrations are defined by regulation as the ambient concentration level reflecting actual air quality as of August 7, 1977, less any contributions from major stationary sources which commenced construction after January 6, 1975. The latter are charged against available PSD increment. A consequence of the definition is that the 1977 Baseline is an abstract quantity which although reflective of measured air quality could not be physically measured during the period preceding August 7, 1977. However, ambient measurement programs are also required by the PSD regulations to serve as a means to "track" or check the quality of modeling estimates and insure that the National Ambient Air Quality Standards (NAAQS) will not be exceeded in any given area.


S-4
S-2
S-5
KEENTOWN
North Fork Manatee River
S-6
S-1
East Fork Manatee River
S-3
N
0
1
2
Scale in Miles

⊛ **PRIMARY SITE** TSP_1, SO_2, F^-_{atm}, F^-_{veg}

✱ **SECONDARY SITE** F^-_{veg}

Figure 5-1 SACC Monitoring Sites

5.1 TSP Measurement Results

Measurements of suspended particulates were conducted at three locations in the general vicinity of the proposed mine site as displayed in Figure 5-1. All measurements were performed using High Volume samplers in accordance with the suspended particulate measurement reference method (40 CFR 50, Appendix B). Measurements were conducted on a six day interval corresponding to schedules observed by state and federal regulatory agencies.

Summary statistics for one year of concurrent measurements at the three monitoring locations are compared with applicable air quality standards in Table 5.1-A, below. The actual measurements and accompanying meteorological history are included in Appendix A. A maximum 24-hour observation of 122 micrograms per cubic meter and a maximum second highest observation of 110.4 micrograms per cubic meter occurred at Station 3. The second value compares with federal primary and state 24-hour ambient air quality standards of 260 and 150 micrograms per cubic meter, respectively. The highest annual geometric mean among the three stations was 29.2 micrograms per cubic meter. The federal primary and state annual standards are 75 and 60 micrograms per cubic meter, respectively.

Qualifications are included for some of the listed values as they were believed to result from extraordinary or coincidental occurrences, e.g., wind from a dusty dirt road, argicultural burning, et cetera. If Station 3 data were adjusted for these localized effects, comparability between statistics at all three sites would be somewhat improved. Lower values at Station 2 are believed to result from two effects — the site was most remote from localized dust producing activities, e.g., unpaved roadways, cultivated agricultural lands, etc., and problems with station

Table 5.1-A Annual TSP Summary for 1977-78

Station	Minimum 24-Hr Average	Maximum 24-Hr Average	Second Maximum 24-Hr Average	Annual Geometric Mean
S-1	9	95	84[a]	25.1
S-2	6	44	41	20.0
S-3	12	122[b]	110[c]	29.2
NAAQS				
Primary			260	75
Secondary			150	60
Florida Standard			150	60

Note: Values in Micrograms per Cubic Meter

---

a) Elevated value attributed to agricultural burning at numerous nearby locations, next second highest value = 54 micrograms per cubic meter.

b) Maximum value attributed to strong gusty winds predominantly from the direction of a nearby dirt road.

c) Next second highest value = 76 micrograms per cubic meter attributed to agricultural burning (see [a]), next second highest value = 64 micrograms per cubic meter.

operation interrupted the measurement sequence during some periods when high values were measured at Stations 1 and 3.

For the year of record, the measured annual geometric means suggest relatively low background concentrations. The Environmental Protection Agency (EPA, 1978) suggest assumption of 30 to 40 micrograms per cubic meter as background level for remote sources in areas where measurements have not been conducted. A remote source is considered one which has no other significant stationary sources within its air quality impact area.

A question of comparability between the computed annual geometric mean and background level deserves some consideration. Ideally, background levels are ambient concentrations which are not influenced by surrounding stationary source emissions, and from a modeling standpoint, a level to which external stationary source effects are added in order to compute an ambient concentration. Inasmuch as modeling indicates that surrounding sources do influence TSP concentrations at the proposed site, the annual geometric means include external stationary source effects and, hence, are a measure of ambient concentrations that are somewhat above true background levels. Consequently, it can be concluded that the annual ambient background levels are somewhat less than indicated by the measured geometric mean concentrations in Table 5.1-A, but that the geometric means offer a useful estimate of background. The statistical geometric means in Table 5.1-B, were selected for this purpose in order to be consistent with the determination of a 24-hour background value. The arithmetic average of the annual geometric means (statistical) was computed for the three monitoring stations and the result, 25 micrograms per cubic meter, judged to be a reasonable approximation of the annual background concentration for the proposed mine area.

The daily (24-hour average) measurements were conducted every sixth day so that the monitoring devices may not have operated on days when higher concentrations were present. Larson (EPA, 1971) provides a statistical methodology for projection of probable maximum 24-hour concentrations had the sampling been conducted each day of the year. Measurements at each of the three TSP monitoring stations were analyzed by this method (Figure 5.1-1 and Appendix B) and results are presented in Table 5.1-B. The goodness of fit of the data set to the regression line is measured by the coefficient of correlation r, which if perfect would equal unity. Correlation exceeded 0.97 in all cases.

The projected largest second highest value was 113.5 micrograms per cubic meter, however, deletion of the questionable measurement discussed above (Table 5.1-A) produces a highest, second highest projection of 110.5 micrograms per cubic meter which compares more favorably with projections at Stations 1 and 2. The arithmetic average of the three second highest projections, 84 micrograms per cubic meter, serves as an estimate of the short-term Baseline for the period of measurement. Since this period coincides quite favorably with the August 7, 1977 PSD date, this value may be considered as one possible estimate of the 1977 Baseline. The results suggest that the highest, second highest concentration was less than 100 micrograms per cubic meter in the general area of the proposed mine and while localized effects may occasionally be expected to produce higher levels, the data suggest that these occurrences may be associated with emissions of natural fugitive dust from unpaved roadways and routine or infrequent agricultural activities such as cultivating or burning.

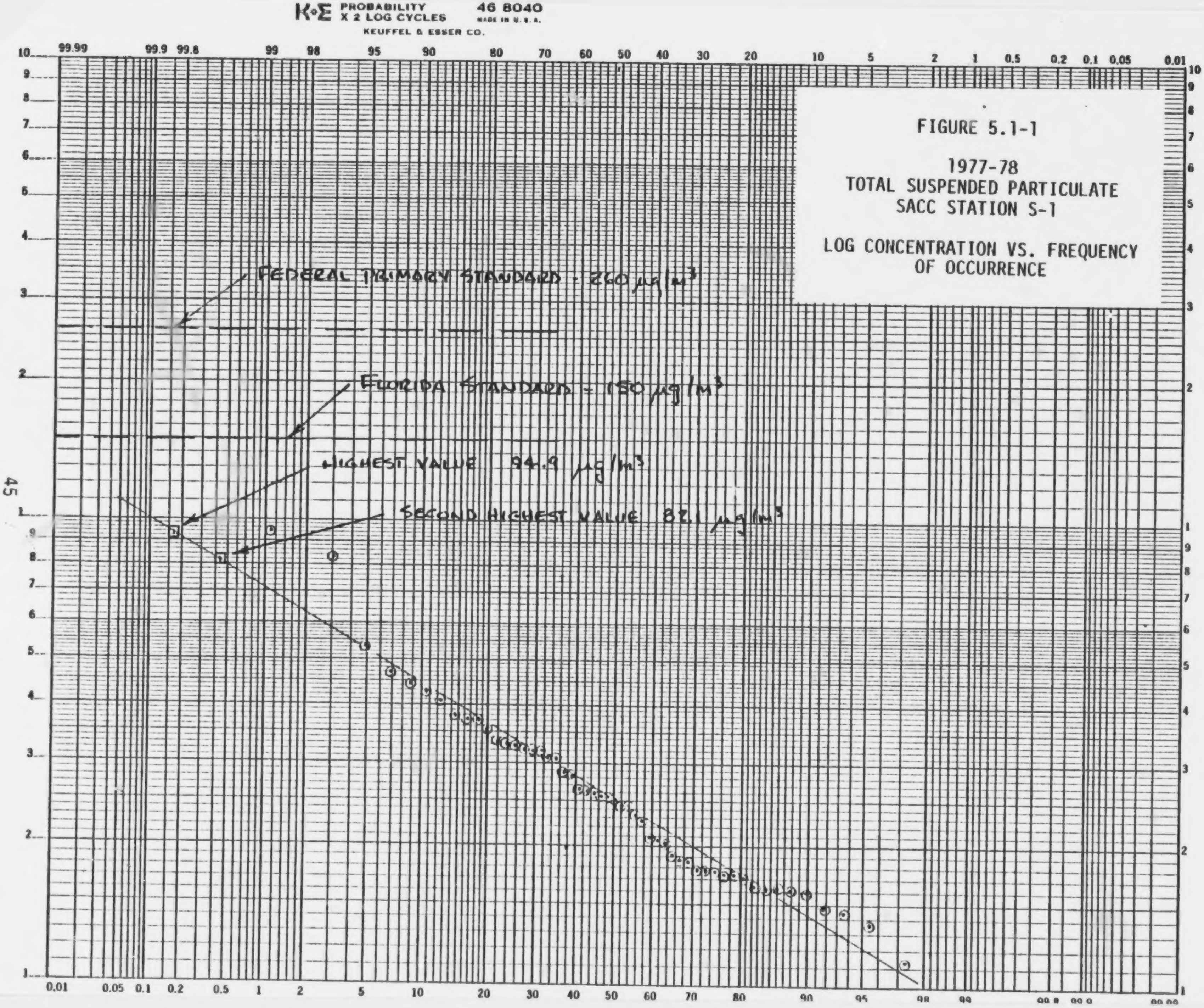


FIGURE 5.1-1

1977-78
TOTAL SUSPENDED PARTICULATE
SACC STATION S-1

LOG CONCENTRATION VS. FREQUENCY
OF OCCURRENCE

Table 5.1-B Log TSP Concentration - Frequency Estimates for 1977-78

Station	Correlation Coefficient "r"	Second Maximum 24-Hour Average	Annual Geometric Mean	Annual Arithmetic Mean
S-1	.98	82.1	25.2	27.9
S-2	.97	68.6	20.1	22.5
S-3	.98 (.99)	113.5 (100.5)[a]	28.6 (27.7)[a]	32.9 (31.3)[a]
Average		83.7	24.3	
NAAQS				
Primary		260	75	(None)
Secondary		150	60	(None)
Florida Standard		150	60	(None)

Note: Values in Micrograms per Cubic Meter

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a) Excluding measurement of 121.5 micrograms per cubic meter corresponding to gusty winds predominantly from the direction of a nearby dirt road.

Subsequent analysis of air quality impact requires a determination of short-term or 24-hour background in addition to the annual background concentration. Various opportunities are afforded for selection of a value, for example, one possibility is the maximum or average of all observations when the wind was primarily from a direction other than a known source, or a more simplified method is application of the EPA Guideline (EPA, 1978C) for remote sources which assumes that the background concentrations are uniform throughout the year and that the stated 30-40 micrograms per cubic meter range would apply to both annual and 24-hour averaging times. The first would be extremely laborious, and the second, a possible oversimplification for the case under consideration. One recent impact analysis (EPA, 1978B) selected the 95 percentile concentration as a best estimate of 24-hour background concentration. The choice is a complex one involving judgements concerning natural fugitive dust influences and a point along the log concentration-frequency plot (Figure 5.1-1) at which external stationary sources cease to influence TSP concentrations.

As displayed in the following table, analysis of the top 20 percent of data (excluding known instances of agricultural or fugitive dust influence) indicated that accompanying resultant daily wind directions were decidedly from one major source concentration — the Pinellas Hillsborough urban area. As these results do not conform with area wind roses, the predominance of northwesterly winds among highest concentrations is considered significant.

Predominant Wind Direction/High Observations

Wind Direction	356-85	86-175	176-275	276-335	336-355
Station					
1	1	0	1	8	0
2	1	2	2	3	0
3	2	1	1	4	0

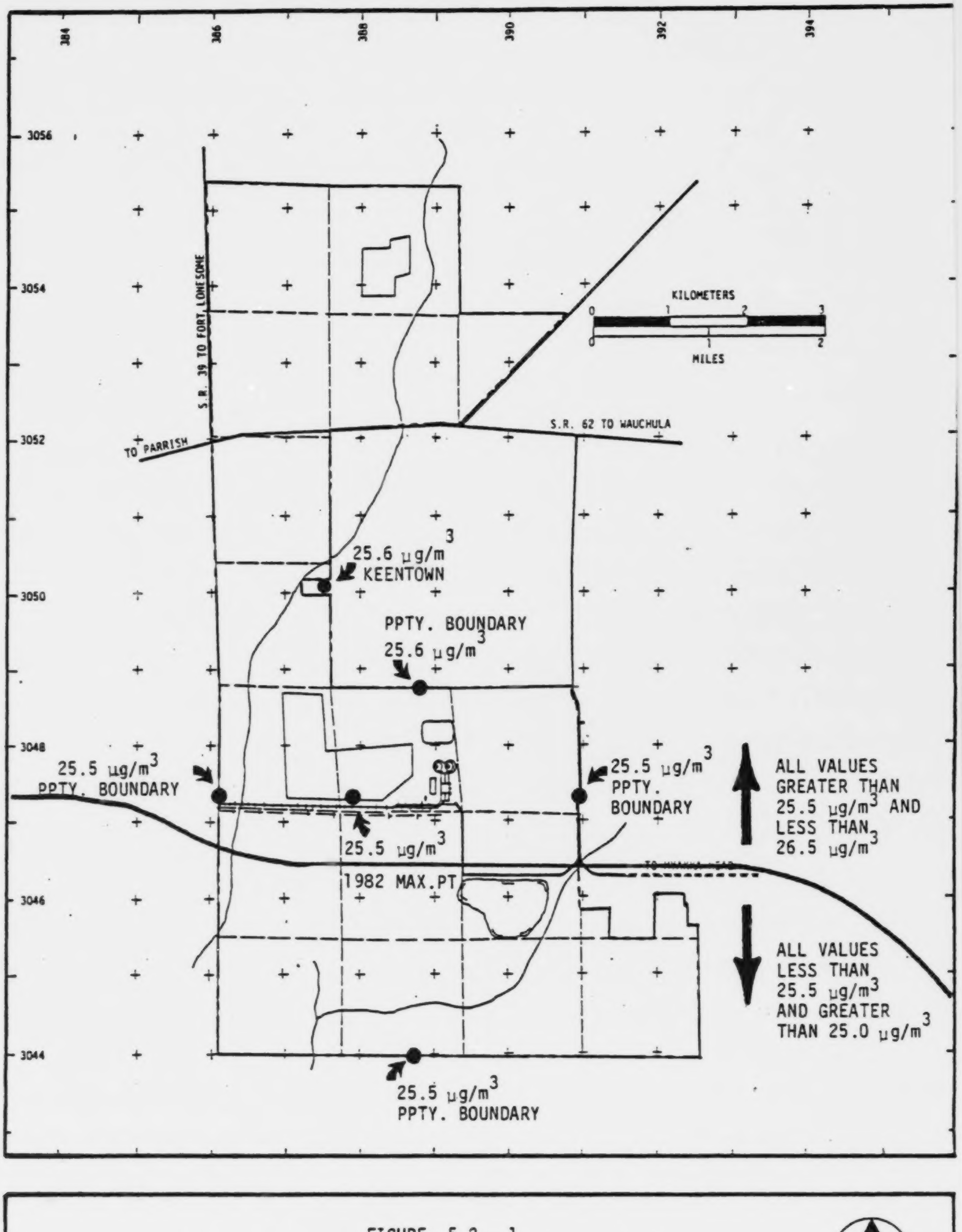
This analysis of ranked high concentrations suggested that the dependency between high observations and wind direction weakened considerably below 35-45 micrograms per cubic meter and that this range may be the threshold of the short-term background level. Generally following the percentile concentration procedure referenced above, statistically projected concentrations were determined for the 95th percentile, and the arithmetic mean for the three stations was determined as the 24-hour background concentration. The resultant value, 55 micrograms per cubic meter, was judged to be a conservative approximation that is consistent with the analysis of ranked high concentration occurrences and an accommodation for a myriad of small sources that could not be included in modeling exercises (and, therefore, assumed to contribute to the background).

5.2 Computed 1977 Baseline Determinations

Long-Term (Annual) Baseline - The long-term air quality effect of existing 1977 sources not charged aganist the allowable PSD increment were computed from actual emission rates using the AQDM computer code. The actual rates were determined from available state records or other published data which best approximated emissions for the year ending August 7, 1977. Meteorological input was represented by a five year period measured at the Tampa National Weather Service (NWS) Station from 1969 through 1973. Specific locations examined were the point of maximum concentration that was determined in Section 6.1, Long-Term Effects, the property boundary concentrations in the four cardinal directions from the proposed source cluster, and the nearest population grouping — the settlement at Keentown (see Figure 5.2-1). The analysis also projected the baseline levels for a 15 by 15 kilometer grid enclosing the entire mine site to provide a graphic area representation of the 1977 Baseline.

The Baseline value at the point where the proposed source would be anticipated to have maximum effect was determined by addition of stationary source effects computed from AQDM to the annual background concentration determined in Section 5.1. The resultant estimate is 25 + 0.5 = 25.5 micrograms per cubic meter. The property boundary Baseline estimates ranged from 25.5 to 25.6 micrograms per cubic meter, with the highest value, 25.6 micrograms per cubic meter, at the north property boundary. The estimated Baseline at Keentown is 25.6 micrograms per cubic meter. Annual Baseline values for other locations may be estimated from the graphical representation in Figure 5.2-1.

Short-Term (24-hour) Baselines - The short-term air quality effect of existing 1977 sources not charged against the allowable PSD increment were computed from actual emission rates using the PTMTP-W computer code. Emission rates for other sources were determined from available state records or other published data which best approximated emissions for the year ending August 7, 1977 (see Appendix C). Meteorological conditions which produced the highest, second highest concentrations at points of maximum effect in Section 6.1, Short-Term Effects were used to estimate Baseline values. As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KEENTOWN
PPTY. BOUNDARY
25.6 µg/m^3
25.5 µg/m^3
PPTY. BOUNDARY
25.5 µg/m^3
1982 MAX.PT
25.5 µg/m^3
PPTY.
BOUNDARY
25.5 µg/m^3
PPTY. BOUNDARY
ALL VALUES GREATER THAN 25.5 µg/m^3 AND LESS THAN 26.5 µg/m^3
ALL VALUES LESS THAN 25.5 µg/m^3 AND GREATER THAN 25.0 µg/m^3

FIGURE 5.2 - 1
ANNUAL 1977 TOTAL SUSPENDED PARTICULATE BASELINE.

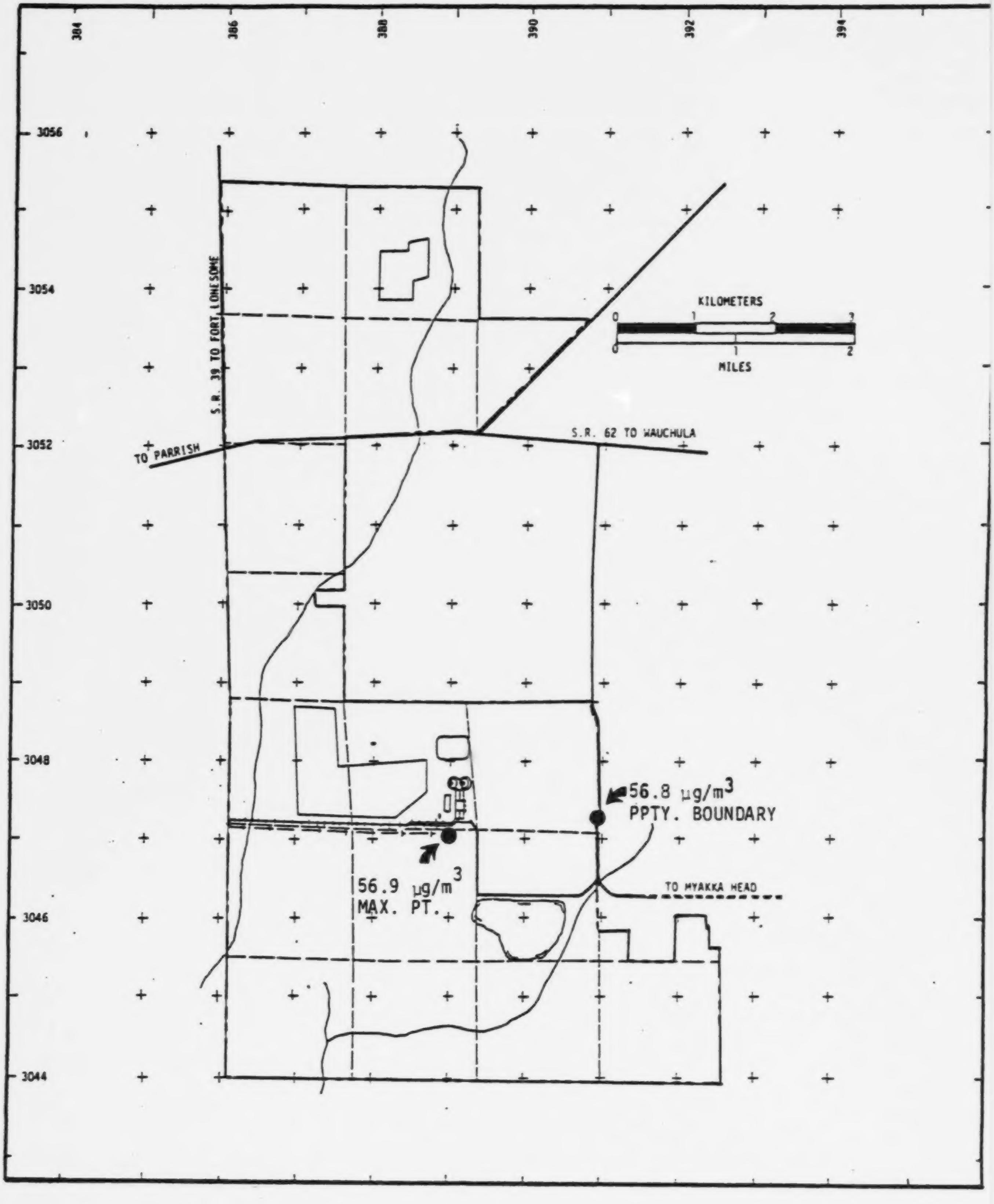
the short-term Baseline varies as a function of meteorology on any one day, only two baseline points were investigated -- the point of maximum effect irrespective of property boundaries and the maximum property boundary location (Figure 5.2-2).

The 1977 short-term Baseline values were determined by addition of stationary source effects computed from PTMTP-W to the 24-hour background concentration, 55 micrograms per cubic meter, determined in Section 5.1. The computed Baseline value at the point of maximum future source effect was determined to be (55 + 1.9) 56.9 micrograms per cubic meter. The Baseline value at worst effect property boundary location was estimated to be (55 + 1.8) 56.8 micrograms per cubic meter.

5.3 SO_2 Measurement Results

Measurements of SO_2 were conducted at three locations in the general vicinity of the proposed mine site as displayed in Figure 5-1. All measurements were performed using the federal reference (West Gaeke) method (40 CFR 50, Appendix A). The measurements were performed under required temperature-controlled conditions to avoid inaccuracies that characterized earlier use of this method, and were conducted on a six day interval concurrent with TSP measurements.

Summary statistics for one year of concurrent measurements are compared with applicable federal and state standards in Table 5.3-A. Actual measurements and accompanying meteorological history are provided in Appendix A. A maximum 24-hour average concentration of 164.4 micrograms per cubic meter was observed at Station 1 on a day when concentrations at other nearby sites ranged between 0 and 22 micrograms per cubic meter. The measurement is suspect and a likely product of an unidentifiable error.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MILES
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56.8 µg/m3
PPTY. BOUNDARY
56.9 µg/m3
MAX. PT.
TO MYAKKA HEAD

FIGURE 5.2 - 2
SHORT-TERM (24 HOUR) 1977 TSP BASELINE AT LOCATIONS OF MAXIMUM PROPOSED SOURCE INFLUENCE

Table 5.3-A Annual SO_2 Summary for 1977-78

Station	Minimum 24-Hour Average	Maximum 24-Hour Average	Second Highest 24-Hour Average	Annual Arithmetic Mean
S-1	0	50.9 (164.4)[a]	43.3	11.6 (14.6)[a]
S-2	0	51.4	45.4	10.3
S-3	0	49.1	42.6	15.0
NAAQS				
Primary			365	80
Secondary			260	60
Florida Standard			260	60

Note: Values in Micrograms per Cubic Meter

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a) Measurements at nearby monitoring sites ranged from 0 - 22.8 on 5/8/79. Inconsistent observation believed to be result of unidentifiable error.

The next highest 24-hour average concentration at Station 1 was 50.9 micrograms per cubic meter, a value more consistent with maxima of 51.4 and 49.1 micrograms per cubic meter at the other two stations. The maximum second highest value of 45.4 micrograms per cubic meter is about 20 percent of the applicable standards. The 24-hour federal primary and state standards are 365 and 260 micrograms per cubic meter, respectively. Excluding the suspect measurements discussed above, the highest annual arithmetic mean for the three stations was 13.7 micrograms per cubic meter which compares with federal primary and state annual standards of 80 and 60 micrograms per cubic meter, respectively.

The SO_2 data were also analyzed by statistical methods (see Appendix B) to project the probable second highest day of the year. Since a large majority of the measurements were below the 25 micrograms per cubic meter threshold of the federal reference method, analysis was performed only on the top ranking 30 percent of the measurements. The results are tabulated in Table 5.3-B.

The results indicate that the maximum second highest value for the measurement year was less than 80 micrograms per cubic meter. The federal primary and state standards are 365 and 260 micrograms per cubic meter, respectively.

It may be noted that the estimated annual arithmetic mean concentrations at each station are individually greater than the calculated values in Table 5.2-A. As indicated above, many of the observations are below measurement threshold of the reference method and when low level samples are analyzed in the laboratory, the procedure tends to underestimate actual SO_2 concentrations. The statistical estimation procedures were

Table 5.3-B Log SO_2 Concentration - Frequency Estimates for 1977-78

Station	Second Maximum 24-Hour Average	Annual Arithmetic Mean
S-1	75.8	12.3
S-2	79.8	12.5
S-3	64.5	18.3
Average	73.4	14.4
NAAQS		
Primary	365	80
Secondary	260	60
Florida Standard	260	60

Note: Values in Micrograms per Cubic Meter confined to what were judged the most accurate or highest measurements in each set of data and while the resulting estimates of annual arithmetic mean rely on substantially fewer measurements to produce a result, they tend to eliminate an inherent analytical bias from the measured data. The average of the estimated annual means at the three stations, 15 micrograms per cubic meter, is probably the best available measure of annual SO_2 Baseline concentration for the period of measurement. This value is less than 25 percent of applicable federal primary and state standards of 80 and 60 micrograms per cubic meter, respectively.

The short-term Baseline should be a value reflecting the highest, second highest concentration for an annual period. The average of the projected highest, second highest values for the three stations was approximately 75 micrograms per cubic meter (Table 5.3-B). This value is less than 30 percent of federal primary and state standards of 365 and 260 micrograms per cubic meter, respectively.

5.4 Fluoride Measurement Results - Total Atmospheric

Measurements of total atmospheric fluoride (F_{atm}) were conducted at the three primary monitoring locations displayed in Figure 5-1. All measurements are expressed as water soluble or gaseous atomic fluoride (atomic weight = 19) and were performed in accordance with latest procedures acceptable to the Florida Department of Environmental Regulation (Florida State Board of Health, 1966). Reported values include both particulate and gaseous constituents, and soluble and insoluble fluoride substances. Sampling was conducted on a six day frequency concurrent with TSP and SO_2 measurements.

Summary statistics for one year of concurrent measurements are presented in Table 5.4-A below. Actual measurements and accompanying meteorological history are provided in Appendix A. Results are presented both in micrograms per cubic meter and parts per billion (ppb) for convenience. The ppb values were computed for an ambient temperature of 55°F which tends to overestimate the annual mean.

The maximum 24-hour average concentration, 4.9 ppb, was observed at Station 1 in February, 1978. The other maxima were observed in January, 1978. The Florida Department of Environmental Regulation proposed a fluoride regulation in 1976 (FDER, 1976) which if adopted would have imposed ambient standards for daily, monthly, and annual averaging times. The proposed standards are provided only for comparison purposes.

All of the measured averages were below the proposed standards with the exception of one 30 day average at Station 1. An agricultural application of fertilizer in the vicinity of this location may explain what otherwise appears as an anomalous occurrence.

Table 5.4-A Annual Total F_{atm} Summary for 1977-78

Station	Minimum 24-Hour Average	Maximum 24-Hour Average	Maximum 30-Day	Maximum 12-Month Average
S-1	0	3.97 (4.9)	2.25 (2.8)	0.57 (0.7)
S-2	0	2.20 (2.7)	1.48 (1.8)	0.42 (0.5)
S-3	0	3.17 (3.9)	1.13 (1.4)	0.43 (0.5)
FDER, 1976 Proposed Std.		(5.6)[b]	(1.8)[b]	(0.9)[b]

Note: Values in Micrograms per Cubic Meter and Parts per Billion (ppb - Parenthesis)[a]

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a) ppb concentrations based on 60°F temperature.

b) Standard proposed, but not approved by FDER Commission (see text).

5.5 Fluoride Measurement Results - Total Vegetative

Measurements of total vegetative fluoride (F_{veg}) were conducted at the three primary and three secondary monitoring locations displayed in Figure 5-1. Measurements are expressed in terms of water soluble or gaseous atomic fluoride (Atomic Weight = 19) and were performed in accordance with latest procedures acceptable to the Florida Department of Environmental Regulation (Florida State Board of Health, 1966). Reported values include fluoride taken up in forage grasses and any soluble or insoluble fluoride included in particulate matter coating the vegetation surface. Sampling was conducted on a monthly frequency consistent with FDER practice.

The three highest measurements for each site are provided in Table 5.5-A. Complete data are included in Appendix A.

Close examination of high occurrences indicate that while there was a general tendency for higher values to appear during the same month throughout the six station network, there was also considerable variability between sites within any one month. The following ranges are descriptive of these differences:

	(parts per million)	
Month	Minimum	Maximum
September, 1977	4.9	110.6
February, 1978	7.6	47.5
March 1978	15.6	52.5

The measurement is a relatively coarse technique, quite dependent upon rainfall, vegetation species, biological state of the vegetation, e.g., dormancy, etc., and any recent carry-over from nearby fertilizer applications. Some of the variation may be traced to these effects

Table 5.5-A Maximum Observations - Total F_{veg}

	S-1	S-2	S-3	S-4	S-5	S-6
Highest	25.0	52.5	37.8	43.1	38.9	110.6
2nd Highest	19.0	47.5	29.5	39.1	26.1	49.0
3rd Highest	16.0	21.4	17.8	35.9	21.3	30.4

Note: Values in Parts per Million - ppm

and possibly to collection or analytical procedures. Whatever the reason, it appears advisable to consider averages of measurements rather than individual measurements on any one sampling day.

The highest monthly average for the six sites was 36.0 ppm observed in March, 1978. The highest 12-month average at any location was 28.2 ppm at Station 6. There was no spatial pattern to suggest a gradient from fertilizer manufacturing operations located to the north and northeast of the proposed project location. The average of all measurement stations for the year was 19.6 ppm.

The FDER proposed a standard for fluoride in forage grass in 1976, and if adopted, would have set 45 ppm (dry basis) as the maximum allowable average concentration for 12 consecutive months. This concentration was developed from experimental results published in scientific literature. None of the station 12-month averages exceeded 45 ppm.

The Manatee County Commission adopted air pollution regulations including fluoride standards. The county standard for grass is 30 ppm (dry basis), but no averaging time is specified. It is presumed that this rule was patterned after the proposed state regulation (12 month averaging period) inasmuch as the 30 ppm level was selected, in part, to protect existing lower levels determined by the annual averaging method. The twelve month station averages are also below the county 30 ppm standard and the average of all stations, or spatial average, is less than two-thirds of the Manatee County standard.

5.6 Area Nitrogen Dioxide Concentrations

The preconstruction monitoring programs were developed and reviewed with local/state environmental regulatory interests during a period when primary concern was for the measured pollutants. At that point in time, interest in nitrogen oxides emissions were generally confined to very large sources, e.g., electric power generation stations. Low measured ambient levels also suggested relatively little benefit would be derived from additional measurements of nitrogen oxides, hence they were not undertaken as part of the preconstruction monitoring program.

Measurements conducted for the Manatee electric power generation station (ESE, 1974-78) at a site approximately half the distance between the power station and proposed development (6 miles) suggest that area nitrogen oxide concentrations are relatively low and changed very little over the four year period from 1974 to 1978. Yearly annual average concentrations measured at this site ranged from 8 to 10 micrograms per cubic meter compared with a federal and state annual standard of 100 micrograms per cubic meter.

A comparison of sulfur dioxide measurements at the FP&L nitrogen oxide measurement site with measurements conducted at the proposed mine site indicates an anomalous condition. Sulfur dioxide measurements at the nitrogen oxide site are somewhat lower than at the proposed mine site and the differences appear inconsistent with the relatively large distances between the measurement sites and major sources of sulfur dioxide emissions (see Appendix C). Since most of the measurements at both locations are well below the threshold sensitivity of the sulfur oxide federal reference procedure and the two measurement sets were analyzed by different procedures, one automated and the others by manual methods, analytical procedure may be the source of the observed difference. However, viewing the FP&L nitrogen oxide measurements with the perspective of other available regional measurements, they do appear reasonably representative of the area in which the proposed mine would be located. This additional perspective of potential nitrogen oxide concentrations are provided by measurements conducted in Hillsborough County (HCEPC, 1977) and St. Petersburg (SPEAD, 1976). Measurements just outside of the heart of the Tampa industrial/port complex were typically below 40 micrograms per cubic meter and in a less industrialized rural area south of the city, levels generally ranged from 10 to 20 micrograms per cubic meter even though air quality in that area was influenced by one major electric power generation facility (TECO, Big Bend). Measurements adjacent to an industrialized area in northwest St. Petersburg (35 micrograms per cubic meter), although of somewhat limited duration, reflected a level comparable to concentrations at the perimeter of Tampa industrial center.

Finally, examination of annual total suspended particulate matter and sulfur dioxide at the proposed mine site indicated rather favorable margins with annual guideline criteria for remote areas (EPA, 1978C). It appears that relatively distant sources and source groups (see Appendix C) contribute effects on an infrequent cycle and do not appreciably influence annual average concentration statistics. On the basis of available information it was assumed that the remote source criteria for annual nitrogen dioxide concentration would also be satisfied and that the annual guideline level (20 micrograms per cubic meter) could be utilized as a conservative estimate of nitrogen dioxide baseline in the area of the proposed mine (see Section 5.1 for additional discussion relating annual background and baseline levels).

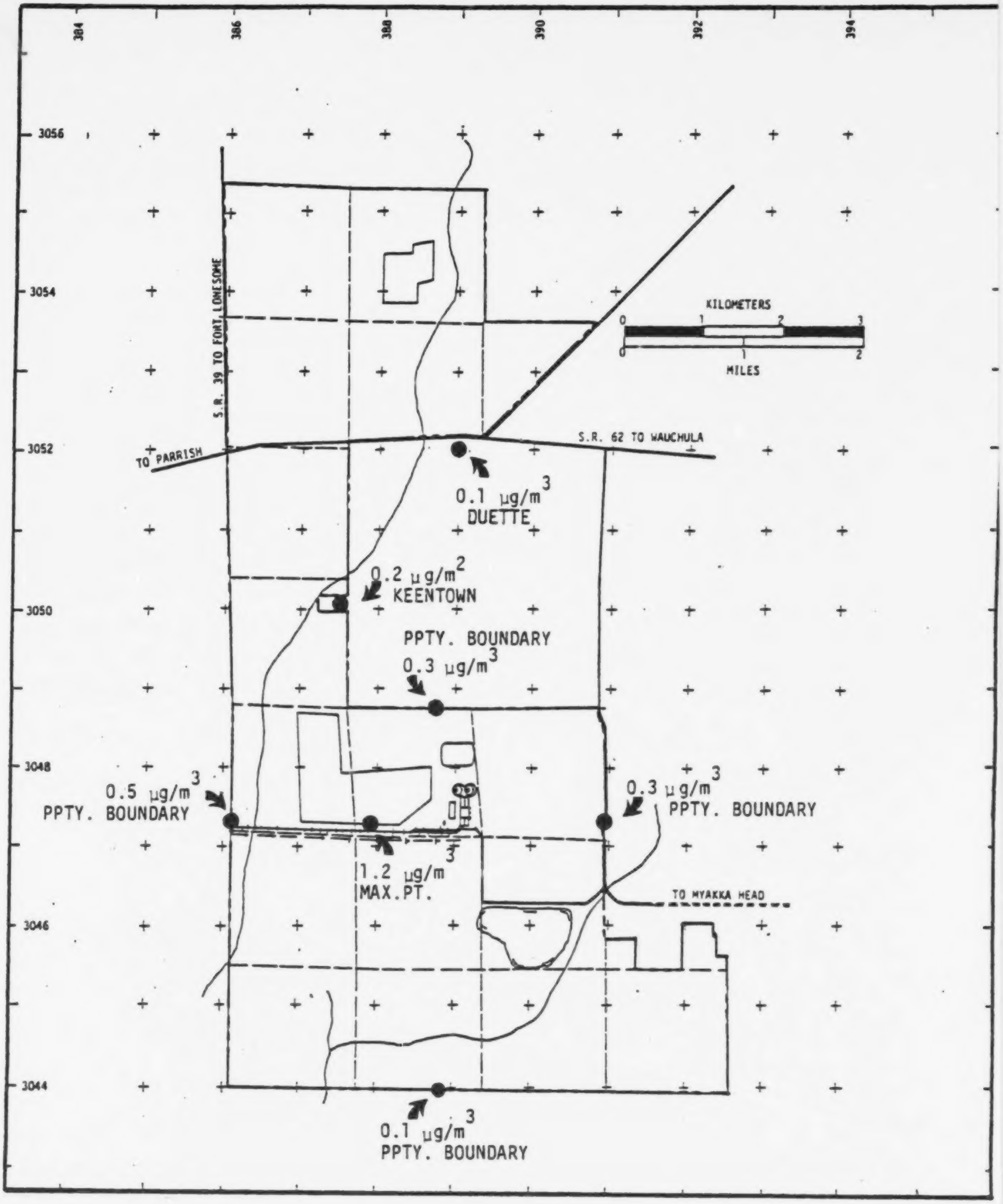
6. POST CONSTRUCTION AIR QUALITY

6.1 Total Suspended Particulate

Long-Term (Annual) Effects - Long-term annual air quality effects contributed by the proposed source and surrounding sources were computed from limiting source emission rates given in Section 4.0 and Appendix C using the AQDM computer code. Meteorological input was represented by a five year period measured at the Tampa National Weather Service (NWS) Station from 1969 through 1973. Specific locations examined were the point of maximum concentration, irrespective of property boundaries, the property boundary concentrations (cardinal directions) and the nearest population groupings at Keentown and Duette. Grid spacing at the maximum point was 0.5 kilometers. The analysis also projected 1982 concentrations on a 15 by 15 kilometer grid enclosing the entire mine site to provide a graphic area representation of overall effect during the first year of mine operation.

Proposed Source Effects: Effect of the proposed source at the point of maximum concentration (Figure 6.1-1) was estimated for maximum operations at the proposed mine. The projected annual effect was estimated to be 1.2 micrograms per cubic meter at the maximum point which is located approximately 1.7 kilometers within the west property boundary and approximately 0.8 kilometers due west of the source cluster.

Estimated effects of the proposed source at the closest property boundaries to the north, east, south, and west range from 0.1 to 0.5 micrograms per cubic meter. The source represents from 11 to 33 percent of the total annual area stationary source contribution at these locations, respectively.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DUETTE
0.2 μg/m^2
KEENTOWN
PPTY. BOUNDARY
0.3 μg/m^3
0.5 μg/m^3
PPTY. BOUNDARY
0.3 μg/m^3
PPTY. BOUNDARY
1.2 μg/m^3
MAX.PT.
TO MYAKKA HEAD
0.1 μg/m^3
PPTY. BOUNDARY

FIGURE 6.1 - 1
LONG TERM (ANNUAL) EFFECTS OF PROPOSED SOURCE PARTICULATE EMISSIONS.

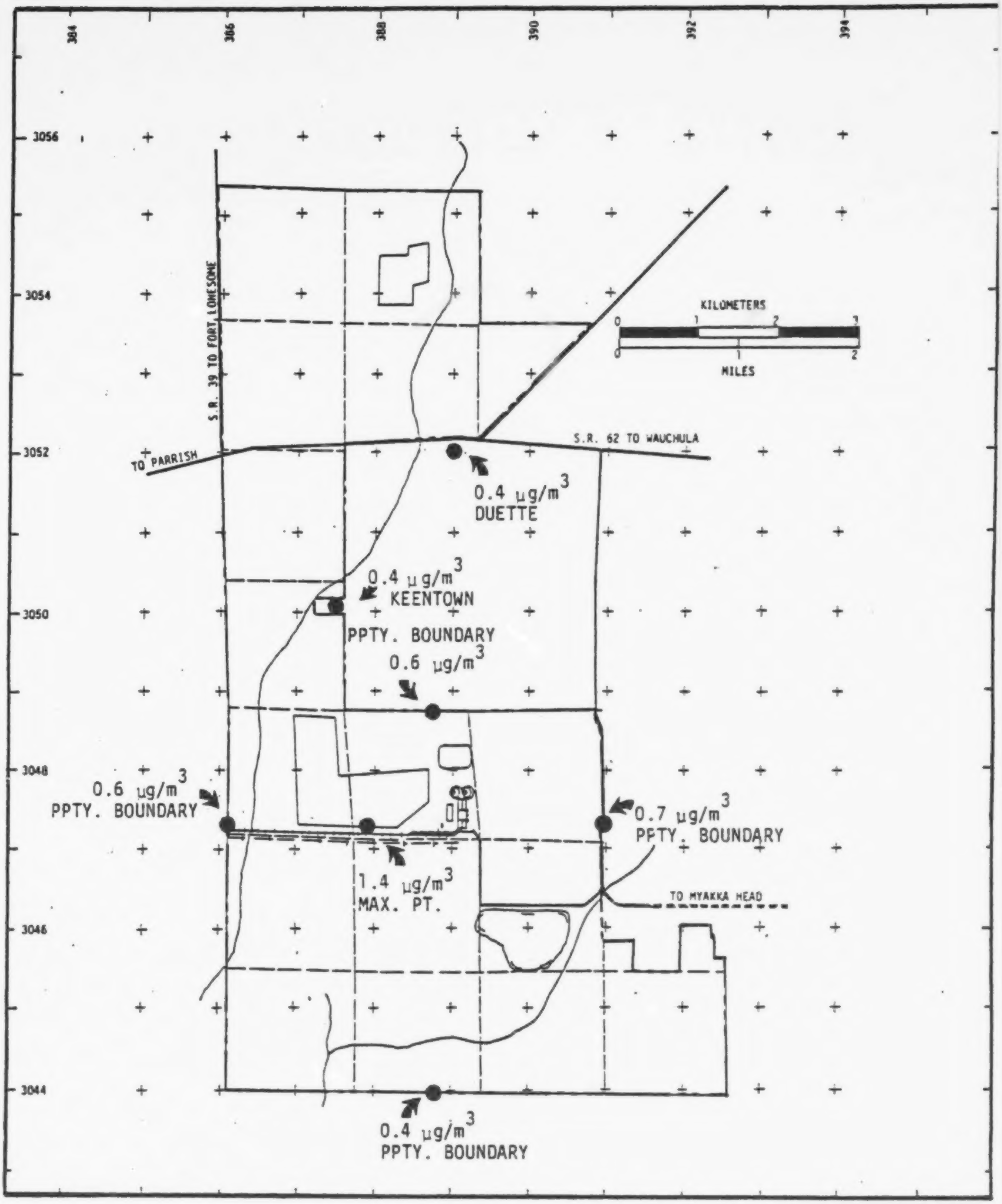
The highest property boundary effect is to the west, which was estimated to be approximately 0.5 micrograms per cubic meter. The projected effect is quite small, and doubtlessly, would be difficult to detect for an annual period.

A projection of annual effect was also computed for the Keentown settlement and the general Duette (school) area. These source effects were determined to be slightly above 0.2 micrograms per cubic meter and approximately 0.1 micrograms per cubic meter. These effects are projected to represent 18 and 6 percent of the total annual area stationary source effect at these locations, respectively.

Increment Consuming Source Effects (PSD): Annual air quality effect of increment consuming sources was determined for maximum allowable annual emission rates of all sources, including the proposed source. A list of the increment consuming sources are included in Appendix C. These effects were computed at each of the locations examined in the previous section to determine conformance with the allowable annual PSD increment of 19 micrograms per cubic meter (Figure 6.1-2).

The annual effect of all increment consumers at the point of maximum effect was estimated to be 1.4 micrograms per cubic meter, about 8 percent of the increment. This value is almost 70 percent of the total stationary source effect at this point.

Estimated annual effects of increment consumers at the property boundaries range from 0.4 to 0.7 micrograms per cubic meter. These contributions represent 40 to 50 percent of the total stationary source effect at these locations, respectively. Effect at Keentown and Duette are 0.5 and 0.4 micrograms per cubic meter, respectively.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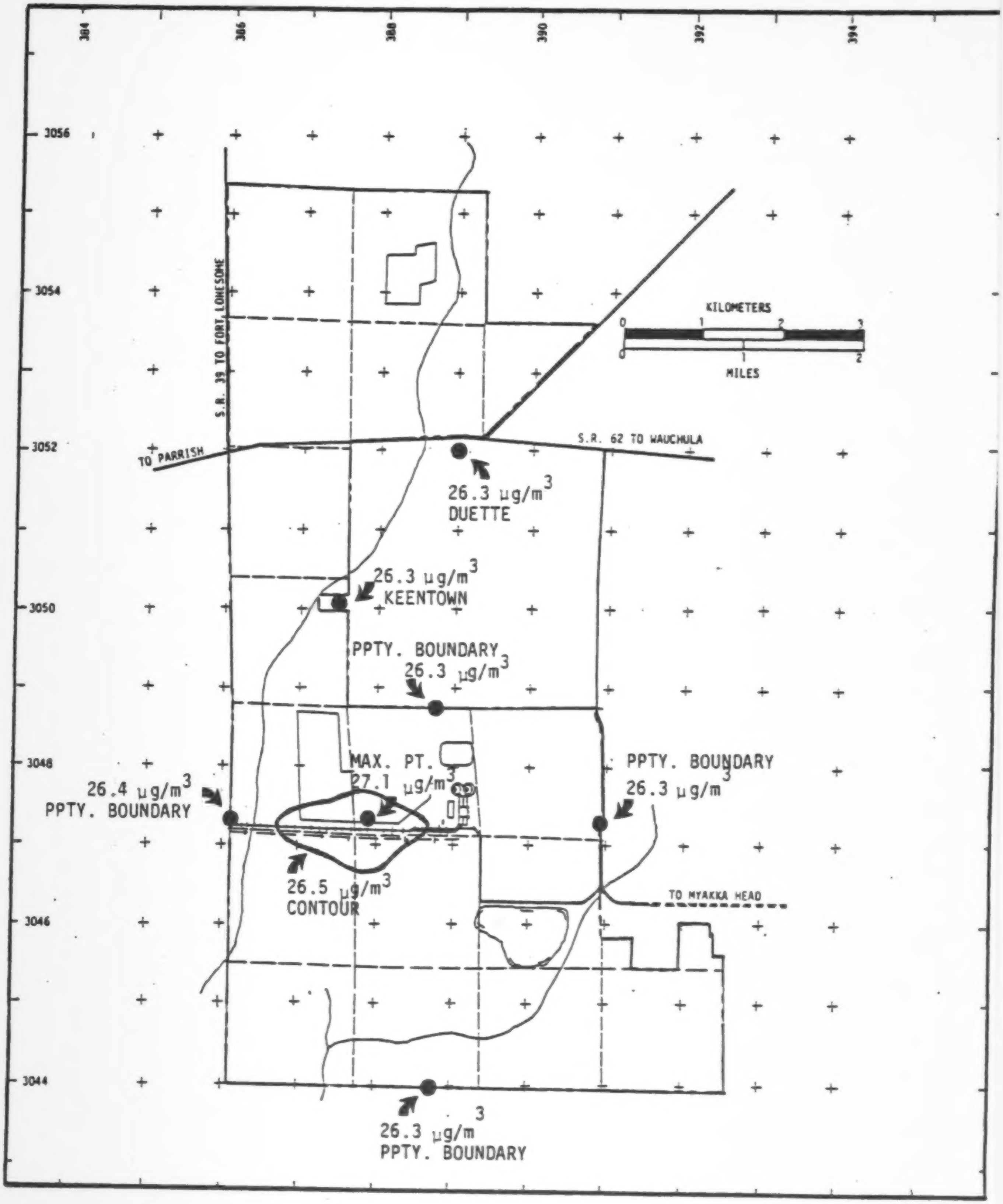
PPTY. BOUNDARY
0.7 μg/m^3
PPTY. BOUNDARY
1.4 μg/m^3
MAX. PT.
TO MYAKKA HEAD
0.4 μg/m^3
PPTY. BOUNDARY

FIGURE 6.1 - 2
LONG TERM (ANNUAL) EFFECTS OF INCREMENT CONSUMING SOURCE PARTICULATE EMISSIONS

Projected Annual Particulate Concentrations (1982): Projected annual effect of all stationary sources were added to the annual background concentration of 25 micrograms per cubic meter (developed in Section 5.1) as a means of determining conformance of the completed facility with State and primary National Ambient Air Quality Standards (NAAQS) of 60 and 75 micrograms per cubic meter, respectively.

The estimated annual (1982) geometric mean concentration at the maximum point is 25 + 2.1 = 27.1 micrograms per cubic meter as shown in Figure 6.1-3. Estimated 1982 annual geometric means at the property boundaries range from 26.3 to 26.4 micrograms per cubic meter, with the highest value at the west property boundary. The estimated 1982 annual concentrations at Keentown and Duette (school) area are both 26.3 micrograms per cubic meter. A graphical representation of projected 1982 area geometric means is also provided in Figure 6.1-3. Except where otherwise noted the projected concentrations are somewhere between 25.5 and 26.6 micrograms per cubic meter in this figure, i.e., the AQDM analysis did not indicate values less than 0.5 micrograms per cubic meter within the area analyzed.

Short-Term (24-hour) Effects - Short-term air quality effects were computed from limiting source emission rates given in Section 4.0 using the PTMTP-W computer code and worst case (highest, second highest concentration) meteorology at the location of interest. The grid spacing was 0.1 kilometers. Worst case meteorology was determined from CRSTER computer code analysis of five years of hourly meteorological data (1970-1974) and was evaluated at distances approximating either the point of maximum impact, the nearest property boundary, and/or for distant upwind sources, whichever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DUETTE
26.3 μg/m^3
KEENTOWN
PPTY. BOUNDARY
26.3 μg/m^3
MAX. PT.
27.1 μg/m^3
26.4 μg/m^3
PPTY. BOUNDARY
PPTY. BOUNDARY
26.3 μg/m^3
26.5 μg/m^3
CONTOUR
TO MYAKKA HEAD
26.3 μg/m^3
PPTY. BOUNDARY

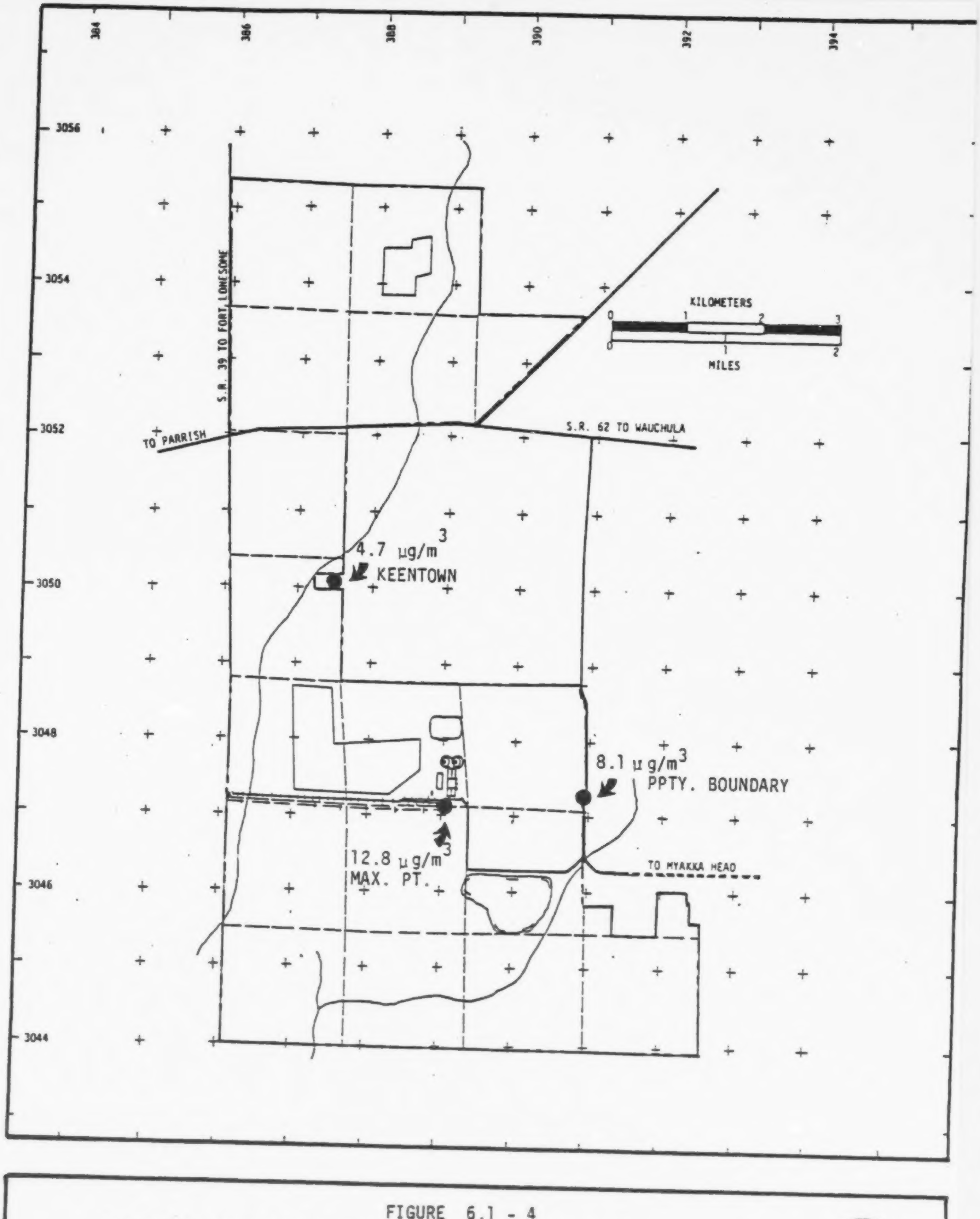
FIGURE 6.1 - 3
PROJECTED LONG TERM (ANNUAL) EFFECTS OF ALL STATIONARY SOURCE PARTICULATE EMISSIONS

produced maximum concentration at the point of interest. The effect of major upwind source groupings was treated by determination of a line of maximum impact through both the source grouping and proposed source. This technique utilized CRSTER worst case meteorology for the sector of interest and PTMTP-W to locate the angle which upwind sources combined to produce worst effect in the vicinity of the proposed source.

Proposed Source Effect: Maximum effect of the proposed source at the point of maximum concentration was projected to be 12.8 micrograms per cubic meter at a point approximately 0.2 kilometers east of the source cluster and 2 kilometers inside (west) of the eastern property boundary (see Figure 6.1-4). The worst case (highest second highest) meteorology was Julian day 175 in 1972 for a CRSTER ring approximating the distance between the proposed source and maximum concentration location.

Effect of the proposed source was also evaluated for the worst case property boundary location by much the same procedure used to estimate maximum concentration. The projected maximum property line concentration was determined to be 8.1 micrograms per cubic meter on the east property boundary. The worst case (highest, second highest) meteorology was determined to be Julian day 174 in 1972 for a CRSTER ring approximating the distance between the proposed source and property boundary.

The estimated short-term effect of the proposed source on Keentown was estimated to be 4.7 micrograms per cubic meter. The worst case meteorology was determined to be Julian day 88 in 1973 for a CRSTER ring approximating the distance between the source and Keentown. This effect is unchanged for the following two levels of analysis inasmuch as there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TO PARRISH
S.R. 62 TO WAUCHULA
KILOMETERS
0
1
2
3
MILES
0
1
2
4.7 µg/m³
KEENTOWN
8.1 µg/m³
PPTY. BOUNDARY
12.8 µg/m³
MAX. PT.
TO MYAKKA HEAD

FIGURE 6.1 - 4
SHORT TERM (24 HOUR) EFFECTS OF PROPOSED SOURCE PARTICULATE EMISSIONS

were no significant sources located to the south of the proposed facility that would interact to produce higher concentrations at Keentown.

Increment Consuming Sources (PSD): Short-term air quality effects of increment consuming sources were determined from maximum allowable short-term emission rates as a means of determining conformance with the 24-hour PSD increment of 37 micrograms per cubic meter. A list of the increment consuming sources is included in Appendix C. These effects were examined for the worst case (highest, second highest), meteorological condition for the proposed source cluster or for upwind sources, either of which suggested generation of a maximum concentration (or both if there was any uncertainty). The analysis was performed for all major upwind increment consuming sources or source groupings to identify maximum ranking highest, second highest short-term concentrations for two locations irrespective of property boundaries and for two locations on property boundaries.

Short-term effects of all increment consumers at the worst two points of highest, second highest concentration were found to be 12.9 and 9.8 micrograms per cubic meter at locations shown in Figure 6.1-5. Increment consumption was therefore found to be 12.9 micrograms per cubic meter or 35 percent of the allowable 37 micrograms per cubic meter PSD increment at the point of maximum concentration. The maximum value (12.9 micrograms per cubic meter) was produced by interaction with sources to the west on Julian day 175 in 1972. For this case, the worst case wind vector was rotated to pass through the Manatee Energy source. The next highest value, 9.8 micrograms per cubic meter, was produced by interaction

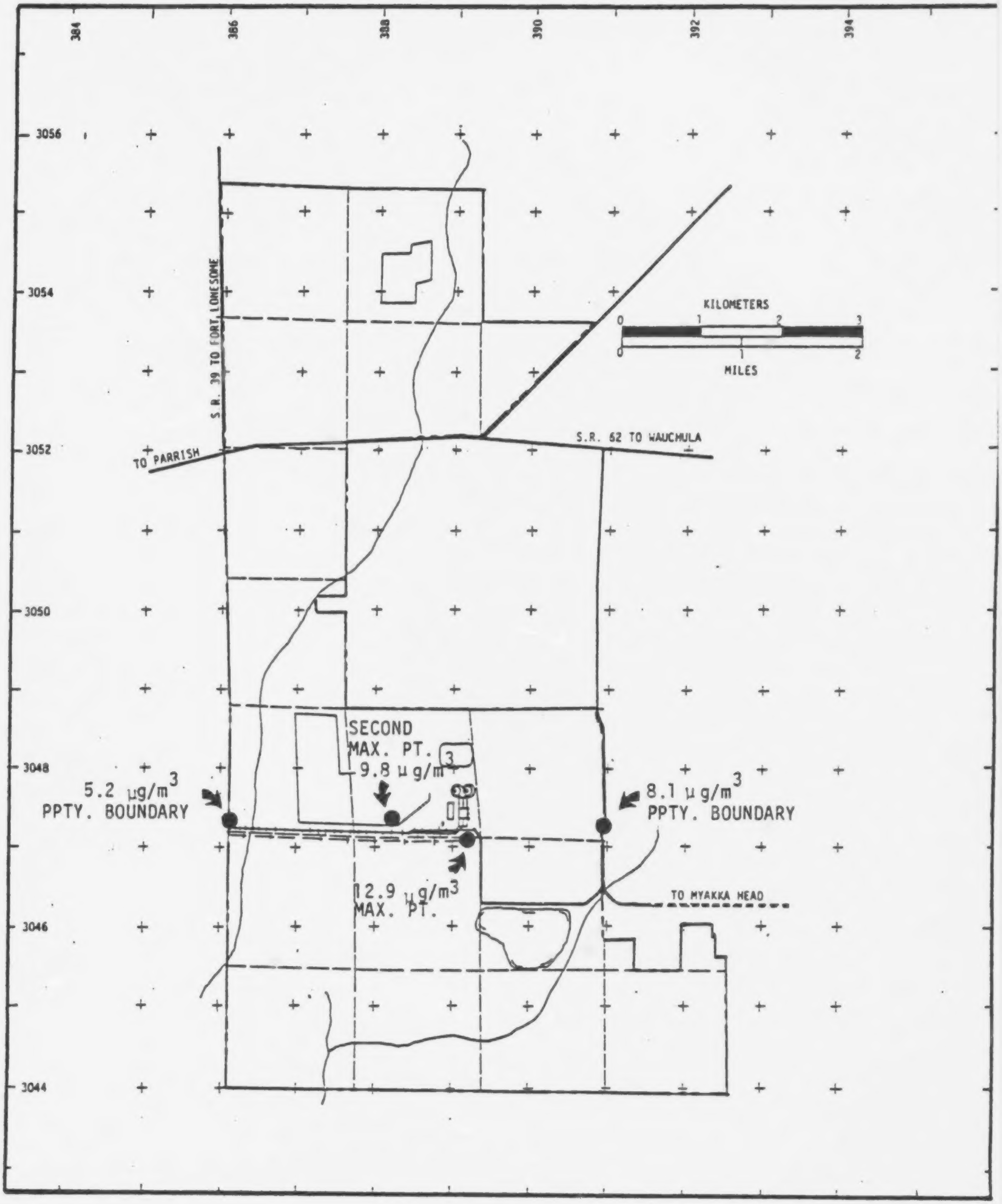

384
386
388
390
392
394
3056
3054
3052
3050
3048
3046
3044
KILOMETERS
0
1
2
3
MILES
0
1
2
S.R. 39 TO FORT LONESOME
TO PARRISH
S.R. 62 TO WAUCHULA
SECOND MAX. PT. 9.8 µg/m3
3
5.2 µg/m3 PPTY. BOUNDARY
8.1 µg/m3 PPTY. BOUNDARY
12.9 µg/m3 MAX. PT.
TO MYAKKA HEAD

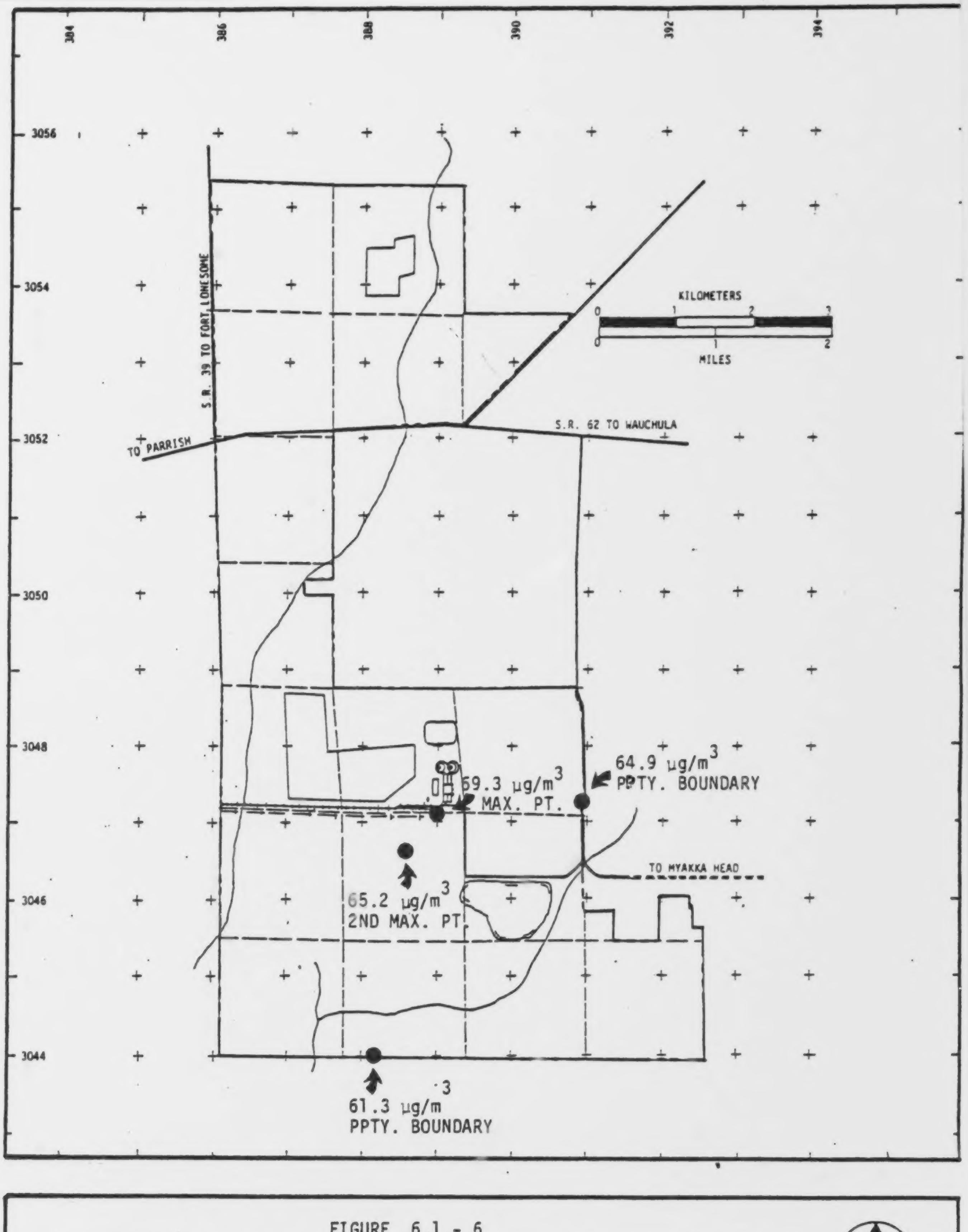
FIGURE 6.1 - 5
SHORT TERM (24 HOUR) EFFECTS OF INCREMENT CONSUMING SOURCE PARTICULATE EMISSIONS.

interaction with sources from an easterly direction. This high value was produced by Julian day 138 in 1970. Both were determined by CRSTER rings approximating the distance from the source to the point of maximum impact.

The short-term effect of increment consumers at the worst two property boundary locations were found to be 8.1 and 5.2 micrograms per cubic meter. The worst value, 8.1 micrograms per cubic meter, was produced by Julian day 174 in 1972 and is less than 23 percent of the allowable PSD increment of 37 micrograms per cubic meter. Comparison with the above section shows that this is the same value and date of maximum effect for the source alone and indicates the upwind increment consumers have no appreciable effect for this case. The next ranking property boundary effect, 5.2 micrograms per cubic meter, was produced by the interaction of sources to the east on Julian day 121 in 1972. Both conditions were determined by CRSTER rings approximating the distance between the source and the property boundary.

Projected Short-Term Particulate Concentrations (1982): Projected short-term effects of all stationary sources were added to the short-term background value of 55 micrograms per cubic meter determined in Section 5.1 to produce an estimate of conformance with the State and National Primary Ambient Air Quality Standards (NAAQS) of 150 and 260 micrograms per cubic meter, respectively. The same methodology was employed as used in analysis of the increment consumers and all possible worst case conditions were evaluated.

The short-term 1982 effects of all sources at the points of maximum concentration were found to be 69.3 micrograms per cubic meter (55 + 14.3) and 65.2 micrograms per cubic meter (55 + 10.2) at the locations shown in Figure 6.1-6. The maximum 1982 levels projected on this basis are somewhat


384
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3056
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3052
3050
3048
3046
3044
S.R. 39 TO FORT LONESOME
TO PARRISH
S.R. 62 TO WAUCHULA
KILOMETERS
0
1
2
3
MILES
0
1
2
69.3 µg/m3
MAX. PT.
64.9 µg/m3
PPTY. BOUNDARY
TO MYAKKA HEAD
65.2 µg/m3
2ND MAX. PT.
61.3 µg/m3
PPTY. BOUNDARY

FIGURE 6.1 - 6
PROJECTED SHORT TERM (24 HOUR) EFFECTS OF ALL STATIONARY SOURCE PARTICULATE EMISSIONS

lower than either of the statistical projections or measured values reported in Section 5.1, but these results must be compared with the estimated 1977 Baseline in Section 5.2 for proper perspective. All factors considered, the 1982 ambient air quality should remain less than two-thirds of the 150 micrograms per cubic meter ambient secondary (state) standard.

The maximum value, 69.3 micrograms per cubic meter, was produced by Julian day 175 in 1972 from a westerly direction. For this case the worst meteorology was rotated to pass through the Manatee Power Plant (FP&L). The next highest value, 65.2 micrograms per cubic meter was produced by interaction of sources to the northeast on Julian day 24 in 1973. Both effects were determined from CRSTER rings approximating the distance between the maximum point and the proposed source.

The short-term 1982 effects of all sources at the maximum property boundary locations were found to be 64.9 micrograms per cubic meter and 61.3 micrograms per cubic meter. The worst value, 64.9 micrograms per cubic meter, was produced by Julian day 174 in 1972 from a westerly direction and the next highest was produced by interaction with sources from a northeasterly direction on Julian day 24 in 1973. Both conditions were produced by CRSTER rings approximating distance between the source and the property boundary. The results indicate that the worst property boundary concentration will also be less than two-thirds of the state and federal secondary standard of 150 micrograms per cubic meter in 1982.

6.2 Sulfur Dioxide

Estimates of sulfur dioxide effect were developed from AQDM and CRSTER analyses used to evaluate nitrogen oxide and particulate matter effects, respectively.

Annual sulfur dioxide concentrations were computed by factoring the nitrogen oxide concentrations by the ratio of sulfur dioxide to nitrogen oxide emission rates. Short-term concentrations were computed with the PTMTP-W computer code using worst case CRSTER meteorology developed for the particulate matter analysis (Appendix E).

Long-Term (Annual) Effects of Proposed Source - Sulfur dioxide emissions from the boiler are a predominating factor determining maximum sulfur dioxide effect. The relatively short stack height and proximity to the north property boundary combine with the dryer emissions to produce an estimate of sulfur dioxide concentration of approximately 0.2 micrograms per cubic meter at the north property boundary. Analysis of available modeling results suggest that the point of maximum effect of stationary sources is close to the north property line and between the boundary and the source cluster. Addition of the non-stationary, area source effects was determined to increase the north property boundary value to approximately 0.3 micrograms per cubic meter. The results indicate that it would be highly unlikely for the proposed source to contribute to an exceedance of the allowable PSD increment. In fact, if all the existing sources were increment consumers, addition of the entire measured 1977 Baseline estimate of 15 micrograms per cubic meter (Section 5.3) to the proposed source would not exceed the PSD increment. Addition of the proposed source effects to the measured Baseline estimate also suggests that exceedance of the state and federal primary (NAAQS) standards of 60 and 80 micrograms per cubic meter, respectively, are not possible without other major source development in the immediate area of the proposed mine.

Short-Term (24-hour) Effects of the Proposed Source - The highest, second highest short-term concentration at the point of maximum effect was determined to be 10.9 micrograms per cubic meter and the highest, second highest concentration at a property boundary was estimated to be 2.3 micrograms per cubic meter. Both effects were computed for points directly east of the source cluster by worst case meteorology on Julian days 175 and 174, respectively, of 1972. The effects compare with short-term 24-hour PSD increment criteria of 91 micrograms per cubic meter and suggest that it is unlikely that the proposed source would contribute an exceedance of the PSD allowable increments as there are no significant increment consumers upwind of the source under these conditions. As with annual effect, if all the existing sources were increment consumers, addition of the entire measured Baseline estimate of 75 micrograms per cubic meter (Section 5.3) to the proposed source would not exceed the PSD increment. Addition of the proposed source effects to the measured Baseline estimate also suggests that exceedance of the 24-hour state and federal primary standards of 260 and 365 micrograms per cubic meter, respectively, are not possible without other major source development in the immediate area.

6.3 Nitrogen Dioxide

Estimates of annual nitrogen dioxide effect were determined with the AQDM computer code. Non-stationary sources were treated as an area source equivalent in size to one year of mining activity. The area source assumed a hypothetical "worst case" condition of two reclamation crews operating on a single tract of land, a condition not likely to be encountered during actual mining operations. The purpose of the modeling effort was to test conformance with the one microgram per cubic meter annual average significance level for nitrogen dioxide and to evaluate any potential for exceedance of the NAAQS.

Long-Term Annual Effects of Proposed Source - Maximum annual effect of the two stationary sources is greatest, a value less than 1.0 micrograms per cubic meter, a short distance within the east property boundary. The two stationary sources have greatest property boundary effect, a value less than 0.5 micrograms per cubic meter, at a location east of the source cluster. Non-stationary source effects are projected to have greatest annual effect on the western perimeter of the area source, but relatively little reclamation activity will be conducted in the vicinity of the west property boundary. Non-stationary sources are projected to add approximately 0.4 micrograms per cubic meter at the east property boundary and yield a total source effect of approximately 0.9 micrograms per cubic meter. The analysis suggests that the stationary source property boundary effects will typically be less than 0.5 micrograms per cubic meter and the overall effect will be less than 1.0 micrograms per cubic meter when reclamation activities are conducted along the property boundary. The maximum concentration point is expected to occur within the property boundary, and the value and location will be dependent upon location of reclamation activities. It is possible that the maximum point concentration may slightly exceed 1.0 micrograms per cubic meter for one or two years when reclamation activities are in the immediate vicinity of the stationary source point of maximum concentration, but this condition will only be temporary.

Addition of the nitrogen dioxide source effects to the baseline assumption of 20 micrograms per cubic meter (Section 5.6) reveals a situation quite similar to sulfur dioxide effect — in that exceedance of the federal and state standards of 100 micrograms per cubic meter are not possible without other major source development in the immediate area of the proposed mine.

6.4 Effects on Soils and Vegetation

Pollutant emissions from the proposed facility include substances that are known to interact with the soil and vegetation. These substances may be in either particulate or gaseous form, and may have beneficial or adverse impact depending on physical, chemical, and other environmental factors. Pollutants having greatest potential for interaction are discussed as follows.

Sulfur Compounds - Sulfur will be released in both gaseous and particulate forms. The predominant gaseous release, sulfur dioxide, along with similar emissions from nearby stationary sources, will produce ambient concentrations that are well below state and secondary federal standards. The secondary standards were designed to protect both the public health and well-being. Insofar as damage to vegetation or soil would constitute an effect on public well being, the ambient air quality standard for sulfur dioxide insures against adverse effects.

It is anticipated that particulate matter emissions will contain minor amounts of chemically combined sulfur in oxidized form. As discussed in Section 3.2, there is evidence that constituents in phosphate rock, e.g., limestone, react with and oxidize sulfur dioxide generated in the (dryer) fuel combustion process, and result in the formation of sulfate compounds. While the compounds formed may have varing solubilities after depositing to the ground surface (soil system) their addition to typically alkaline central Florida soils would be somewhat similar in effect to agricultural applications of sulfur. Sulfur is frequently used to reduce soil alkalinity and improve agricultural productivity. Thus, nearby agricultural lands, e.g., citrus, grazing pasture, etc., most likely to experience any effect at all, may be considered to derive slight benefit from minor additions of sulfur compounds.

Nitrogen Compounds - Nitrogen will be released to the atmosphere primarily in gaseous form as nitric oxide, but will react with other atmospheric pollutants, e.g., ozone, hydrocarbons, etc., fairly rapidly to form other pollutant species, e.g., nitrogen dioxide, peroxyacetyl nitrate, etc. Inasmuch as projected ambient concentrations are substantially below federal and state standards, direct damage to vegetation and soils by nitrogen oxides is extremely unlikely. Atmospheric nitrogen oxides are precursor pollutants which can contribute to the formation of photochemical smog. This effect is discussed in more detail under the topic of Visibility (Section 6.5).

Phosphate Compounds - While some ash will be contributed by fuel oil combustion, phosphate rock and clay dusts will predominate in the emissions of particulate matter from dry rock processing operations. The phosphate fraction is relatively less soluble and less available to soil than processed fertilizers, but this nutriative substance will be deposited and taken up into the soil system. While the effect may be so slight as to be unnoticeable, nearby agricultural lands may benefit slightly from the additions.

Fluorides - The drying temperatures are generally much to low to release gaseous fluoride from the rock, but the formation of minor amounts of fluoride gas and soluble compounds is expected. While the pollution control equipment is optimized for removal of both particulate matter and gaseous substances, some soluble and insoluble fluorides will be released. The relatively insoluble fluoride would predominate as a constituent of the phosphate rock dust. A portion of soluble component will be present as a gas and the balance will be present in solid particulate form.

While there is some question as to whether fluoride is an essential nutrient in both begetation and animals, any substantial addition to naturally occurring levels can be expected to contribute adverse effect. The best possible estimate of the total soluble and insoluble fluoride emission is a range of 10-15 pounds per day including less than one pound per day of gaseous fluoride (IMC, 1977). For comparison, a recent impact analysis for a fertilizer production facility (EPA, 1978) reported effects on livestock and vegetation corresponding to fluoride emissions of 379 pounds per day (exclusive of gypsum pond emissions for which the daily rate was estimated to be a value between limits of 40 and 4,000 pounds per day).

Cattle born and raised within a 5 mile radius of the fertilizer production source were reported to have been subjected to clinical examination. The examination indicated slight effect on a few teeth in less than one-third of the animals examined. Slight effect is described as slight mottling, i.e., horizontal striation of tooth enamel with no increase in normal wear (National Academy of Sciences, 1974). Reported vegetation surveys conducted over a four year period revealed only moderate tip necrosis in pine trees located on a cooling pond dike and no other significant effects in the vicinity of the source. Pine is among a select group of vegetation, e.g., Gladiolus, grape, sweet corn, tulip, etc., which are classed as most sensitive to fluoride. Examples of intermediate and resistant species are citrus and tomato, respectively (APCA, 1970). Based upon these reported findings, it is unlikely that significant adverse fluoride effect could result from the relatively low emissions projected for the proposed facility.

Radioactive Substances - Phosphate rock and phosphatic clays contain radionuclides in somewhat greater concentrations than occur in natural surface soils. Dusts emitted from the drying storage and loading operations will contain radioactive components which will deposit to the ground surface in a somewhat predicable manner. The radiological section of this study examines airborne radionuclide transport from the source and discusses the effects in considerable detail. This section should be referred to for additional information.

6.5 Effects on Visibility

Visibility effects may result from a variety of phenomena. Each are briefly discussed below along with the potential relationship with or contribution from the proposed source.

Photochemical Smog - The precursors of photochemical smog are nitrogen oxides and reactive hydrocarbon species; and a surrogate index of the magnitude of the smog prevalence is the ozone concentration produced during periods of maximum sunlight intensity. Two visibility effects are associated with photochemical smog. One is a brownish appearing discoloration produced by absorption of light in the blue wavelength range by nitrogen dioxide. The second is obscuration of distant objects (light absorption and scattering) by submicron particles that are formed from gaseous pollutants in the atmosphere. The particles are formed through complex chemical reactions that are induced by the energy in sunlight (hence the term photochemical). The percursor chemical gases are contributed by both natural and manmade sources. Nitrogen oxides are produced primarily by high temperature combustion of fuel, e.g., boilers and automotive vehicles. Hydrocarbons are released from the incomplete combustion of fuels, e.g., automotive engines and from fuel storage and transfer operations. Significant quantities of hydrocarbons are also contributed from natural marine and terrestrial sources, e.g., pinene from pine forests. Since some of the smog producing reactions are cyclic and can regenerate the nitrogen oxide precursors, the pollutant gases can travel relatively great distances from the point of emission and continue to generate smog effects in their path. Thus visibility effects due to smog formation may be produced by long distance importation of aged pollutants that are supplemented by local emissions from the affected area. This mechanism is suspected as a contributor to the smog incidence in the central Florida region.

As the proposed source will utilize fuel oil in the mining and rock drying processes and some of the fuel will undergo high temperature combustion, it will contribute to smog formation in relative proportion to all other contributions of precursor pollutants to the region.

Plumes - Gases discharged from an industrial stack may contain solid particulates, e.g., smoke, and/or droplets which condense from superheated vapors. This liquid and solid aerosol is highly concentrated at the exit point and it obscures visibility in a relatively well defined dispersion pattern departing from the source. Plumes can also contain fine submicron particulate matter which may induce a localized formation of fog (Charleson, 1978). To many individuals, the appearance of a plume is aesthetically unattractive, particularly when present in a scenic vista. In this case the landscape is not viewed as characteristically scenic, so that the vapor plume should not particularly detract from aesthetic values. Further, the stack heights have been adjusted to lowest reasonable levels to reduce this effect to the greatest possible degree.

Emissions from the proposed source will be ducted to the atmosphere through stacks closely matching the height of other structures to minimize excessive plume height and visibility from long distances. The particulate emission concentrations controlled under new BACT requirements will be below levels generally considered observable by trained plume opacity observers (EPA, 1978B). However, the plumes will contain varying degrees of heated water vapor that will condense into droplets at the stack exit. The white plume having the appearance of steam will dissipate (evaporate) within a relatively short distance from the stack except during conditions of abnormally high relative humidity.

As the proposed facility will be located nearly 1-1/2 miles from the nearest public road, aerosol inducement of localized fog is considered relatively unlikely on nearby roadways.

Wind Entrained Dust - The mining operations will expose open soil surfaces which after rainfall will form surface crust and subsequently will be reclaimed with vegetative cover. Wind entrainment of soil is a function of particle size (weight) and attractive forces between particles which increase with decreasing particle diameter. Wind entrained particles tend to be sufficiently large that they nominally return to the surface within relatively short distances from the source. Similar to agricultural cultivation of crop lands, localized obscuration of vision may accompany mining activities during excessively windy conditions.

High Relative Humidity Haze and Fog - As large scale haze and fog may be induced by particulate (condensation nucleii) that are contributed by industrial, urban, and both natural terrestrial and maritime sources, the proposed source will contribute to haze and fog formation in relative proportion to all regional contributions of condensation nucleii.

6.6 Secondary Growth Effect.

Polulation growth and commercial activities are not expected to develop in the immediate area of the mine, but will tend to exhibit a diffuse pattern of relatively minor effects in remote areas. A combination of factors suggest against population and commercial development in the vicinity of the mine. First, the mine will employ a relatively small number of people and present land ownership and zoning strongly suggest that very few could relocate to the vicinity of the mine. This observation follows a general historical pattern that has shown that area mining has not contributed significantly to development of new aggregations of population and commercial activity. Increased energy utilization, e.g., electric power, is an industrial growth component for which impact has already been examined in considerable detail.

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APPENDIX A

INTERIM SUMMARY OF AMBIENT AIR QUALITY MONITORING FOR SWIFT AGRICULTURAL CHEMICALS CORPORATION

MAY 19, 1977 - JULY 31, 1978

INTERIM SUMMARY
OF
AMBIENT AIR QUALITY MONITORING
FOR
SWIFT AGRICULTURAL CHEMICAL CORP.

May 19, 1977 - July 31, 1978

Submitted to:

SWIFT AGRICULTURAL CHEMICALS CORP.
First Commercial Bank Building
410 Cortez Road West, Suite 275
Bradenton, Florida 33507

Submitted by:

CONSERVATION CONSULTANTS, INC.
Post Office Box 35
Palmetto, Florida 33561

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SWIFT AGRICULTURAL CHEMICAL CORP.

ANNUAL DATA SUMMARIES

(6/18/77 - 6/13/78)

Total Suspended Particulate (TSP - μg/m^3)

Station	Minimum	Maximum	Geometric Mean
S-1	9.0	95.3	26.3
S-2	6.4	72.6	20.6
S-3	11.9	121.5	29.2
FDER Standard	--	150	60

Sulfur Dioxide (SO_2 - μg/m^3)

Station	Minimum	Maximum	Arithmetic Mean
S-1	0.0	50.9 (164.4)[a]	11.6 (14.6)[a]
S-2	0.0	51.4	10.3
S-3	0.0	49.1	15.0
FDER Standard	---	260	60

Atmospheric Fluoride (F_{atm} - μg/m^3)

Station	Minimum	Maximum	Arithmetic Mean
S-1	0.00	3.97	.63
S-2	0.00	2.20	.42
S-3	0.02	3.17	.45

a - Includes questionable measurement of 164.4 on 5-8-78.

SWIFT AGRICULTURAL CHEMICAL CORP.

INCLUSIVE DATA SUMMARIES

(5/19/77 - 7/31/78)

Total Suspended Particulate (TSP - $\mu g/m^3$)

Station	Minimum	Maximum	Geometric Mean
S-1	9.0	95.3	25.3
S-2	6.4	72.6	23.2
S-3	8.9	121.5	28.4
FDER Standard	---	150	60

Sulfur Dioxide (SO_2 - $\mu g/m^3$)

Station	Minimum	Maximum	Arithmetic Mean
S-1	0.0	50.9 (164.4)[a]	11.3 (14.1)[a]
S-2	0.0	51.4	11.5
S-3	0.0	49.1	13.7
FDER Standard		260	60

Atmospheric Fluoride (F_{atm} - $\mu g/m^3$)

Station	Minimum	Maximum	Arithmetic Mean
S-1	0.00	3.97	0.57
S-2	0.00	2.20	0.42
S-3	0.00	3.17	0.43

a - Includes questionable measurement of 164.4 on 5-8-78.

SWIFT AGRICULTURAL CHEMICAL CORP.

ANNUAL VEGETATIVE FLUORIDE SUMMARY

(F_{veg} - ppm)

Station / Month	S-1	S-2	S-3	S-4	S-5	S-6
June, 1977	3.2	5.0	1.3	1.8	2.1	0.8
July, 1977	a	a	a	0.3	3.7	1.0
August, 1977	3.9	10.0	5.2	8.0	10.3	8.5
September, 1977	10.7	6.7	6.5	4.9	13.1	*110.6*
October, 1977	6.3	8.8	13.9	15.8	14.7	22.6
November, 1977	16.9	17.3	29.5	*39.1*	26.1	*30.4*
December, 1977	12.1	15.4	17.0	*35.9*	21.3	12.5
January, 1978	25.0	21.4	17.2	7.8	17.6	10.4
February, 1978	8.1	*47.5*	*37.8*	19.0	7.6	9.5
March, 1978	15.6	*52.5*	16.8	*43.1*	*38.9*	*49.0*
April, 1978	b	b	b	b	b	b
May, 1978	b	b	b	b	b	b
June, 1978	11.3	14.0	17.8	15.5	9.4	17.1
July, 1978	19.1	14.7	13.3	14.9	21.1	11.8

a - Insufficient sample available.
b - Sample not collected. Sampling continued two additional months to compensate for missing data.

Italicized Values are considered evidence of air pollution effect on vegetation as expressed in Manatee County Air Pollution Rules. Some elevated measurements are believed related to agricultural applications of fertilizer.

AIR QUALITY DATA

1977

STATION 1: BILL PARRISH ROAD

Date	TSP, $\mu g/m^3$	SO_2, $\mu g/m^3$	F^{-}_{atm}, $\mu g/m^3$
5/19	9.1	10.5	0
5/25	21.4	-a-	.031
5/31	17.1	9.6	.064
6/06	11.0	3.6	.232
6/12	46.0	3.6	0
6/18	18.8	2.4	.159
6/24	79.0	5.4	.178
6/30	42.5	3.0	.754
7/06	16.0	12.0	.527
7/12	20.3	11.4	0
7/18	14.5	13.2	.309
7/24	17.8	11.3	.061
7/30	16.2	1.2	.003
8/05	13.7	13.2	0
8/11	16.4	8.6	.128
8/17	17.9	4.8	.060
8/23	-b-	7.5	.338
8/29	17.9	3.4	.195

-a- SO_2 Sampler malfunctioned

-b- Filter damaged in recovery

STATION S-1: BILL PARRISH ROAD

Date	TSP (ug/m^3)	SO_2 (ug/m^3)	F^-_{atm} (ug/m^3)
9/04/77	9.0	8.3	.19
9/10/77	28.2	5.0	.05
9/16/77	25.7	7.0	.33
9/22/77	32.3	25.2	.02
9/28/77	17.5	14.0	1.27
10/04/77	37.4	13.8	.17
10/10/77	14.9	9.9	.24
10/16/77	38.0	14.3	.84
10/22/77	25.1	17.2	b
10/28/77	40.7	0.0	.78
11/04/77[a]	71.4	1.2	.63
11/09/77	31.2	2.8	.26
11/15/77	23.3	6.8	.34
11/21/77	35.5	13.3	.52
11/27/77	25.6	29.4	.13

[a] Incorrectly set timer; sampled for 12 hours; not included in means.

[b] Accidental loss of sample solution.

STATION S-1: BILL PARRISH ROAD

Sample Date	TSP ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	F^-_{atm} ($\mu g/m^3$)
12-03-77	22.9	3.9	0.00
12-09-77	19.1	4.4	0.82
12-15-77	18.6	2.1	0.62
12-21-77	20.8	50.9	0.81
12-27-77	a	a	a
1-02-78	a	a	a
1-08-78	24.6	a	a
1-14-78	32.0	1.3	0.76
1-20-78	44.9	11.4	2.67
1-26-78	33.7	17.9	3.08
2-01-78	37.4	0.7	3.97
2-07-78	83.5[b]	3.9	0.26
2-13-78	a	a	a
2-19-78	32.1	22.9	0.81
2-25-78	24.5	16.9	0.36

a - Data not available due to vandalism.

b - Elevated TSP level attributable to agricultural burning at numerous locations in the immediate vicinity.

STATION S-1: BILL PARRISH ROAD

Sample Date	TSP ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	F^-_{atm} ($\mu g/m^3$)
3/03/78	26.3	17.1	0.49
3/09/78	16.4	28.9	0.28
3/15/78	17.4	0.0	a
3/21/78	26.4	b	2.82
3/27/78	95.3[c]	b	0.83
4/02/78	b	b	b
4/08/78	b	b	b
4/14/78	32.8	b	1.66
4/20/78	53.7	b	0.59
4/26/78	47.1	43.3	b
5/02/78	28.8	7.6	0.62
5/08/78	16.6	164.4[d]	0.51
5/14/78	30.9	30.5	0.18
5/20/78	17.1	3.6	0.70
5/26/78	e	0.0	f
6/01/78	26.0	36.6	0.40
6/07/78	11.2	6.9	0.22
6/13/78	33.1	2.1	0.24
6/19/78	g	g	g
6/25/78	20.7	17.2	0.10

a - Operation error.
b - Data not available due to vandalism.
c - Similar high concentrations occurred at other nearby stations.
d - Measurements at nearby monitoring sites ranged from 0 to 22.8 on 5-8-78. Inconsistent measurement is believed to be the result of an unidentifiable error.
e - HiVol malfunctioned.
f - Sampling hose vibrated loose during sample run.
g - Sampling temporarily discontinued.

STATION 2: DUETTE

Date	TSP, $\mu g/m^3$	SO_2, $\mu g/m^3$	F^-_{atm}, $\mu g/m^3$
5/19 [a]	----	----	----
5/25 [a]	----	----	----
5/31 [a]	----	----	----
6/06 [a]	----	----	----
6/12 [a]	----	----	----
6/18	18.2	2.9	.015
6/24	72.6	10.6	.186
6/30	29.4	1.2	.161
7/06	17.9	7.2	.193
7/12	17.0	13.4	0
7/18	16.2	8.4	0
7/24	-b-	4.9	0
7/30	17.5	3.7	.043
8/05	12.1	8.4	0
8/11	16.6	3.9	.101
8/17	-c-	6.0	.095
8/23	10.3	14.4	.257
8/29	20.6	6.0	.230

-a- Electrical problems caused samplers to shutdown each day. The problem was finally traced to the circuit breaker box which was replaced.

-b- Filter damaged in recovery.

-c- Insect nest on filter.

STATION S-2: DUETTE

Date	TSP (ug/m^3)	SO_2 (ug/m^3)	F^-_{atm} (ug/m^3)
9/04/77	a	a	a
9/10/77	30.5	4.6	.33
9/16/77	a	a	a
9/22/77	13.0	b	0.00
9/28/77	20.7	12.9	.18
10/04/77	a	a	a
10/10/77	15.2	24.8	.62
10/16/77	a	a	a
10/22/77	29.1	19.0	.50
10/28/77	39.1	0.0	.15
11/03/77	20.5	20.1	.31
11/09/77	31.2	4.7	.22
11/15/77	25.2	8.9	.51
11/21/77	34.8	34.6	.13
11/27/77	23.9	4.8	.20

a Problem with circuit breaker, new breaker installed.

b Accidental loss of sample solution.

STATION S-2: DUETTE

Sample Date	TSP ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	F^-_{atm} ($\mu g/m^3$)
12-03-77	25.8	4.1	0.07
12-09-77	16.0	16.9	0.80
12-15-77	21.8	3.2	0.52
12-21-77	21.2	51.4	0.37
12-27-77	a	2.5	0.68
1-02-78	b	b	b
1-08-78	b	1.2	0.80
1-14-78	b	0.6	0.49
1-20-78	b	0.0	0.93
1-26-78	43.9	4.4	2.20
2-01-78	b	b	b
2-07-78	a	4.6	1.09
2-13-78	b	b	b
2-19-78	6.4	35.1	1.29
2-25-78	c	c	c

a - HiVol malfunctioned.

b - Data not available due to vandalism.

c - Blown fuse in timer.

STATION S-2: DUETTE

Sample Date	TSP ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	F^-_{atm} ($\mu g/m^3$)
3/03/78	6.5	13.5	a
3/09/78	b	b	b
3/15/78	b	b	b
3/21/78	19.8	b	0.73
3/27/78	c	b	0.80
4/02/78	b	b	b
4/08/78	b	b	b
4/14/78	c	b	1.34
4/20/78	6.6	b	0.33
4/26/78	d	d	d
5/02/78	d	d	d
5/08/78	d	d	d
5/14/78	e	e	e
5/20/78	27.6	19.1	0.18
5/26/78	25.9	0.0	0.11
6/01/78	26.7	13.0	0.43
6/07/78	20.1	15.3	0.33
6/13/78	41.2	0.0	0.52
6/19/78	f	f	f
6/25/78	27.4	15.2	0.42
7/01/78	45.4	45.4	0.16

STATION S-2: DUETTE (Continued)

Sample Date	TSP ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	F^-_{atm} ($\mu g/m^3$)
7/07/78	23.1	23.1	1.00
7/13/78	20.9	7.6	0.73
7/19/78	18.1	10.1	0.24
7/25/78	43.7	16.6	0.16
7/31/78	23.5	10.4	0.48

a - Operator error.
b - Data not available due to vandalism.
c - Hi Vol malfunctioned.
d - Circuit breaker tripped.
e - Timer malfunctioned.
f - Sampling temporarily discontinued.

STATION 3: RAWLS ROAD

Date	TSP, $\mu g/m^3$	SO_2, $\mu g/m^3$	Fatm, $\mu g/m^3$
5/19	35.1	9.0	.152
5/25	23.7	1.4	.022
5/31	17.4	7.9	0
6/06	8.9	1.3	.231
6/12	59.6	3.5	.358
6/18	21.1	2.9	.097
6/24 [a]	----	----	----
6/30	31.1	2.0	.369
7/06	34.1	9.6	.019
7/12	14.6	6.5	.044
7/18 [a]	----	----	----
7/24 [a]	----	----	----
7/30 [a]	----	----	----
8/05 [a]	----	----	----
8/11 [a]	----	----	----
8/17 [a]	----	----	----
8/23	-b-	1.2	.243
8/29	17.5	9.6	.071

-a- Recurring electrical failures caused shocks to operators. Repeated inspections by the electrical contractor were necessary to identify and correct the problem.

-b- Hi-Vol malfunctioned.

STATION S-3: RAWLS ROAD

Date	TSP (ug/m^3)	SO_2 (ug/m^3)	F^-_{atm} (ug/m^3)
9/04/77	11.9	24.6	.11
9/10/77	30.1	23.7	.10
9/16/77	25.5	9.2	.24
9/22/77	17.7	31.3	.04
9/28/77	21.5	49.1	.08
10/04/77	36.9	21.5	.22
10/10/77	19.5	9.2	.07
10/16/77	44.0	15.7	.30
10/22/77	24.8	8.7	.29
10/28/77	39.6	3.1	.33
11/03/77	20.3	25.1	.78
11/09/77	32.2	4.0	.42
11/15/77	28.3	37.3	.12
11/21/77	35.2	14.2	.36
11/27/77	25.5	40.2	.51

STATION S-3: RAWLS ROAD

Sample Date	TSP ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	F^-_{atm} ($\mu g/m^3$)
12-03-77	28.6	1.3	0.24
12-09-77	17.6	23.6	0.75
12-15-77	a	a	a
12-21-77	a	a	a
12-27-77	a	a	a
1-02-78	a	a	a
1-08-78	a	a	a
1-14-78	32.1	1.2	0.76
1-20-78	40.5	2.7	3.17
1-26-78	39.6	1.2	0.66
2-01-78	44.0	1.3	0.64
2-07-78	76.4[b]	2.9	0.43
2-13-78	c	c	c
2-19-78	30.5	6.0	0.61
2-25-78	24.7	25.9	0.65

a - Unable to service station due to flooding.

b - Elevated TSP level attributable to agricultural burning at numerous locations in the immediate vicinity.

c - Data not available due to vandalism.

STATION S-3: RAWLS ROAD

Sample Date	TSP ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	F^-_{atm} ($\mu g/m^3$)
3/03/78	27.1	16.8	0.56
3/09/78	14.3	42.6	0.38
3/15/78	15.8	0.0	1.02
3/21/78	110.4	a	0.90
3/27/78	b	a	0.76
4/02/78	a	a	a
4/08/78	a	a	a
4/14/78	61.7	a	0.33
4/20/78	63.5	a	0.54
4/26/78	121.5[c]	21.9	0.89
5/02/78	30.5	28.5	0.30
5/08/78	19.8	2.7	0.32
5/14/78	45.3	19.3	0.09
5/20/78	22.4	24.6	0.11
5/26/78	25.9	0.0	0.22
6/01/78	23.4	19.6	0.21
6/07/78	12.9	22.7	1.03
6/13/78	d	d	d
6/19/78	e	e	e
6/25/78	21.7	8.4	0.56

a - Data not available due to vandalism.
b - HiVol malfunctioned.
c - Higher reading corresponds with moderately strong and gusty winds, predominantly from the direction of a nearby dirt road.
d - Timer malfunctioned.
e - Sampling temporarily discontinued.

COMPREHENSIVE LOCAL
CLIMATOLOGICAL DATA
TAMPA (AT RUSKIN), FLORIDA

MAY 1977
TAMPA, FLORIDA
NAT WEATHER SERVICE MET OBSY
INTERNATIONAL AIRPORT

Local Climatological Data

MONTHLY SUMMARY

MAY 1977 TAMPA, FLORIDA

LATITUDE 27° 58' N LONGITUDE 82° 32' W ELEVATION (GROUND) 19 FT. STANDARD TIME USED: EASTERN WBAN #12842

WEATHER TYPES ON DATES OF OCCURRENCE: 1 FOG, 2 HEAVY FOG, 3 THUNDERSTORM, 4 ICE PELLETS, 5 HAIL, 6 GLAZE, 7 DUSTSTORM, 8 SMOKE, HAZE, 9 BLOWING SNOW

DATE 1	TEMPERATURE °F: MAXIMUM 2	MINIMUM 3	AVERAGE 4	DEPARTURE FROM NORMAL 5	AVERAGE DEW POINT 6	DEGREE DAYS BASE 65°: HEATING (SEASON BEGINS WITH JULY) 7A	COOLING (SEASON BEGINS WITH JAN.) 7B	WEATHER TYPES ON DATES OF OCCURRENCE 8	SNOW, ICE PELLETS OR ICE ON GROUND AT 07AM IN. 9	PRECIPITATION: WATER EQUIVALENT IN. 10	SNOW, ICE PELLETS IN. 11	AVG. STATION PRESSURE IN. ELEV. 11 FEET M.S.L. 12	WIND: RESULTANT DIR. 13	RESULTANT SPEED M.P.H. 14	AVERAGE SPEED M.P.H. 15	FASTEST MILE: SPEED M.P.H. 16	FASTEST MILE: DIRECTION 17	SUNSHINE: MINUTES 18	PERCENT OF POSSIBLE 19	SKY COVER TENTHS: SUNRISE TO SUNSET 20	MIDNIGHT TO MIDNIGHT 21	DATE 22
1	87	58	73	-2	57	0	8	8	0	0	0	30.18	13	5.4	7.9	14	13	723	81	2	1	1
2	88	57	73	-2	58	0	8	8	0	0	0	30.15	13	5.1	8.5	15	30	534	60	4	3	2
3	90	65	78	3	63	0	13	8	0	.06	0	30.11	12	5.4	7.3	12	09	572	72	7	6	3
4	88	66	77	2	65	0	12		0	0	0	30.07	11	6.7	7.3	12	08	445	56	10	9	4
5	88	66	77	2	67	0	12	1	0	T	0	30.03	30	5.4	7.5	15	15	420	53	6	6	5
6	86	70	78	2	69	0	13	2 8	0	0	0	30.01	28	2.0	8.3	14	28	463	58	6	7	6
7	89	67	78	2	69	0	13	1 8	0	0	0	30.03	29	4.4	8.6	15	28	672	84	6	5	7
8	87	70	79	3	71	0	14		0	0	0	29.95	27	6.6	8.4	15	29	632	78	6	6	8
9	83	73	78	2	69	0	13	3	0	.52	0	29.90	28	5.2	8.9	19	36	241	30	9	8	9
10	86	70	78	2	66	0	13	1	0	T	0	29.81	29	7.8	8.4	19	10	305	38	9	8	10
11	80	67	74	-2	60	0	9		0	0	0	29.98	29	12.5	12.9	17	29	147	19	9	9	11
12	74	63	69	-8	59	0	4		0	T	0	30.08	07	13.1	13.4	18	08	24	3	10	9	12
13	84	61	73	-4	53	0	8		0	0	0	30.07	06	10.6	11.2	15	08	720	88	1	2	13
14	83	55*	69*	-8	57	0	4	1 8	0	0	0	30.03	27	4.8	7.8	15	28	688	85	1	1	14
15	86	62	74	-3	61	0	9	1 8	0	0	0	30.03	25	3.7	6.6	14	25	573	71	5	4	15
16	86	64	75	-2	58	0	10	1 8	0	0	0	30.14	11	6.2	8.6	18	10	545	67	3	2	16
17	88	63	76	-1	63	0	11	1 8	0	0	0	30.17	09	5.5	8.6	15	09	429	53	4	2	17
18	88	63	76	-2	62	0	11	1 8	0	0	0	30.12	08	4.8	7.5	10	35	460	56	4	3	18
19	88	66	77	-1	62	0	12	1 8	0	0	0	30.07	33	.6	7.5	15	28	594	73	2	2	19
20	87	66	77	-1	62	0	12	1 8	0	0	0	30.04	11	3.1	7.1	12	11	429	53	3	2	20
21	88	66	77	-1	61	0	12	1 8	0	0	0	30.04	08	8.8	10.2	17	08	460	56	2	1	21
22	88	65	77	-1	62	0	12	1 8	0	0	0	30.04	08	9.4	9.8	15	08	545	66	3	2	22
23	91	65	78	0	65	0	13		0	T	0	29.98	32	7.5	9.2	15	36	539	66	4	3	23
24	89	69	79	1	67	0	14	8	0	0	0	29.87	32	2.7	6.6	15	27	584	71	6	5	24
25	87	65	76	-3	66	0	11		0	0	0	29.94	27	6.1	8.3	15	27	710	87	3	3	25
26	88	72	80	1	67	0	15		0	0	0	29.89	26	6.2	7.6	15	29	683	83	4	3	26
27	88	71	80	1	69	0	15	1 3 8	0	.05	0	29.91	25	3.7	7.1	16	27	533	65	9	5	27
28	87	72	80	1	70	0	15	1 3	0	.06	0	29.78	25	5.9	7.5	15	24	314	38	10	8	28
29	89	72	81	2	70	0	16	1 3 8	0	0	0	29.84	23	2.5	5.8	10	23	411	50	8	6	29
30	90	69	80	1	69	0	15	1 3 8	0	.03	0	29.83	24	2.3	7.1	13	20	553	67	7	6	30
31	91*	73	82*	3	71	0	17	1 3 8	0	.01	0	29.84	11	3.9	4.6	12	12	412	50	8	6	31

SUM	SUM				HEATING TOTAL	COOLING TOTAL	NUMBER OF DAYS	
2692	2051				0	364	PRECIPITATION ≥ .01 INCH	6
AVG.	AVG.	AVG.	DEP.	AVG.	DEP.	DEP.	SNOW, ICE PELLETS ≥ 1.0 INCH	0
86.8	66.2	76.5	-0.7	64	0	-14	THUNDERSTORMS	6
NUMBER OF DAYS					SEASON TO DATE		HEAVY FOG	1
MAXIMUM TEMP. ≥ 90°	MAXIMUM TEMP. ≤ 32°	MINIMUM TEMP. ≤ 32°	MINIMUM TEMP. ≤ 0°		TOTAL	TOTAL	CLEAR 9	PARTLY CLOUDY 12 CLOUDY 10
4	0	0	0		1011	803		
					DEP.	DEP.		
					293	-62		

PRECIPITATION TOTAL	SNOW, ICE PELLETS TOTAL	FOR THE MONTH: AVG. STATION PRESSURE	RESULTANT DIR.	RESULTANT SPEED	AVERAGE SPEED	FASTEST MILE SPEED	FASTEST MILE DIRECTION	SUNSHINE TOTAL MINUTES	% FOR MONTH	SKY COVER SUM	SUM
.73	0	30.00	29	2.0	8.1	19	10	15467		171	143
DEP.						DATE:	10+	POSSIBLE FOR MONTH		AVG.	AVG.
-1.68								25174	61	5.5	4.6

GREATEST IN 24 HOURS AND DATES: PRECIPITATION .52 9; SNOW, ICE PELLETS 0

GREATEST DEPTH ON GROUND OF SNOW, ICE PELLETS OR ICE AND DATE: 0

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.
T TRACE AMOUNT
+ ALSO ON AN EARLIER DATE, OR DATES.
HEAVY FOG: - VISIBILITY 1/4 MILE OR LESS.
FIGURES FOR WIND DIRECTIONS ARE TENS OF DEGREES CLOCKWISE FROM TRUE NORTH. 00 = CALM.
DATA IN COLS. 6 AND 12-15 ARE BASED ON 7 OR MORE OBSERVATIONS PER DAY AT 3-HOUR INTERVALS.
FASTEST MILE WIND SPEEDS ARE FASTEST OBSERVED ONE-MINUTE VALUES WHEN DIRECTIONS ARE IN TENS OF DEGREES. THE / WITH THE DIRECTION INDICATES PEAK GUST SPEED.
ANY ERRORS DETECTED WILL BE CORRECTED AND CHANGES IN SUMMARY DATA WILL BE ANNOTATED IN THE ANNUAL SUMMARY.

SUMMARY BY HOURS

HOUR (LOCAL TIME)	AVERAGES: SKY COVER (TENTHS)	STATION PRESSURE IN.	TEMPERATURES: AIR °F	WET BULB °F	DEW PT. °F	RELATIVE HUMIDITY %	WIND SPEED M.P.H.	RESULTANT WIND: DIRECTION	SPEED M.P.H.
01	3	30.00	71	67	64	80	5.8	10	3.3
04	3	29.99	68	65	64	87	5.1	08	2.7
07	5	30.02	70	66	65	84	6.1	06	2.9
10	5	30.04	80	70	65	62	8.3	11	2.9
13	6	30.03	84	72	64	51	11.0	15	1.9
16	6	29.96	85	73	63	49	12.9	36	1.8
19	5	29.96	79	69	63	59	9.7	35	1.9
22	3	30.01	74	68	64	72	5.7	10	4.0

HOURLY PRECIPITATION (WATER EQUIVALENT IN INCHES)

DATE	A.M. 1	2	3	4	5	6	7	8	9	10	11	12	P.M. 1	2	3	4	5	6	7	8	9	10	11	12	DATE
1																									1
2																									2
3																					.04	.02	T		3
4																									4
5												T					T	T							5
6																									6
7																									7
8																									8
9								.06		.07	.39														9
10																	T								10
11																									11
12							T	T					T			T									12
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27			.05																						27
28			T	T			.01	.04		T		.01	T												28
29																									29
30																						.02	.01		30
31													.01	T		T									31

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JUNE 1977
TAMPA, FLORIDA
NAT WEATHER SERVICE MET OBSY
INTERNATIONAL AIRPORT

Local Climatological Data

MONTHLY SUMMARY

JUNE 1977 TAMPA, FLORIDA

LATITUDE 27° 58' N LONGITUDE 82° 32' W ELEVATION (GROUND) 19 FT. STANDARD TIME USED: EASTERN WBAN #12842

DATE	TEMPERATURE °F MAXIMUM	MINIMUM	AVERAGE	DEPARTURE FROM NORMAL	AVERAGE DEW POINT	DEGREE DAYS BASE 65° HEATING (SEASON BEGINS WITH JULY)	COOLING (SEASON BEGINS WITH JAN.)	WEATHER TYPES ON DATES OF OCCURRENCE 1 FOG 2 HEAVY FOG 3 THUNDERSTORM 4 ICE PELLETS 5 HAIL 6 GLAZE 7 DUSTSTORM 8 SMOKE, HAZE 9 BLOWING SNOW	SNOW, ICE PELLETS OR ICE ON GROUND AT 07AM IN.	PRECIPITATION WATER EQUIVALENT IN	SNOW, ICE PELLETS IN.	AVG. STATION PRESSURE IN. ELEV. 11 FEET M.S.L.	WIND RESULTANT DIR.	RESULTANT SPEED M.P.H.	AVERAGE SPEED M.P.H.	FASTEST MILE SPEED M.P.H.	DIRECTION	SUNSHINE MINUTES	PERCENT OF POSSIBLE	SKY COVER TENTHS SUNRISE TO SUNSET	MIDNIGHT TO MIDNIGHT	DATE
1	2	3	4	5	6	7A	7B	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1	92	71	82	2	70	0	17	1 8	0	0	0	29.90	26	3.1	8.3	12	27	666	79	4	4	1
2	89	76	83	3	72	0	18	3 8	0	T	0	29.88	19	2.8	6.3	12	14	230	25	10	10	2
3	92	73	83	3	72	0	18	1 3 8	0	.06	0	29.97	13	5.1	7.8	18	04	437	53	6	8	3
4	88	72	80*	0	71	0	15	3	0	.44	0	30.09	13	3.0	5.0	15	01	155	20	10	10	4
5	90	71	81	1	70	0	16		0	0	0	30.05	32	2.0	6.2	13	34	527	63	9	9	5
6	90	74	82	2	72	0	17		0	0	0	29.89	27	6.7	8.8	16	27	568	68	8	7	6
7	89	77	83	3	73	0	18		0	T	0	29.78	26	12.4	12.5	18	27	282	34	7	7	7
8	91	75	83	3	70	0	18		0	T	0	29.87	27	4.5	9.2	14	27	581	70	6	5	8
9	90	78	84	3	72	0	19		0	0	0	29.98	25	7.5	8.6	14	27	734	89	3	2	9
10	93	73	83	2	71	0	18		0	0	0	30.03	29	8.4	9.1	16	27	720	84	2	1	10
11	92	73	83	2	73	0	18	1 8	0	0	0	30.00	27	7.7	7.9	16	27	579	70	2	3	11
12	98*	78	88	7	73	0	23	1 8	0	0	0	29.97	30	8.7	8.6	17	29	577	59	9	5	12
13	95	75	85	4	71	0	20		0	0	0	30.02	27	6.3	7.5	15	28	578	66	4	4	13
14	97	73	85	4	70	0	20	3 8	0	.06	0	30.07	36	3.9	6.2	16	15	421	50	5	6	14
15	94	72	83	2	72	0	18	1 3 8	0	.10	0	30.07	25	1.8	5.3	28	36	530	63	7	6	15
16	94	73	84	3	73	0	19	1 3 8	0	.99	0	30.09	35	2.3	5.5	18	13	407	49	5	9	16
17	93	73	83	2	72	0	18	1 3 8	0	.06	0	30.06	11	3.0	5.5	16	01	413	50	5	7	17
18	91	75	83	2	72	0	18	3 8	0	0	0	30.07	22	1.5	4.5	12	03	310	37	8	6	18
19	91	74	83	2	72	0	18	8	0	0	0	30.08	26	3.7	5.5	14	27	624	72	6	5	19
20	92	77	85	4	72	0	20	3	0	0	0	30.09	26	6.4	7.3	15	27	686	83	6	5	20
21	91	80	86	5	72	0	21	3	0	0	0	30.13	27	8.9	8.1	13	30	480	57	9	7	21
22	92	76	84	3	73	0	19	3	0	0	0	30.13	19	1.1	5.5	9	30	432	52	7	6	22
23	95	75	85	3	72	0	20	8	0	0	0	30.15	34	2.0	5.8	9	34	645	77	3	3	23
24	97	76	87	5	72	0	22	3 8	0	T	0	30.11	02	3.0	5.9	13	27	467	60	4	5	24
25	94	76	85	3	73	0	20	3	0	0	0	30.07	27	5.6	5.9	14	25	657	79	7	6	25
26	95	80	88*	6	73	0	23		0	0	0	30.08	27	9.4	8.8	15	27	667	80	3	2	26
27	94	77	86	4	72	0	21	8	0	0	0	30.07	27	6.5	8.9	15	27	654	83	1	1	27
28	95	73	84	2	69	0	19	1 8	0	0	0	30.08	27	5.0	5.8	18	28	610	73	1	2	28
29	94	71*	83	1	72	0	18	3 8	0	.85	0	30.09	25	2.7	5.5	17	10	488	59	9	4	29
30	91	75	83	1	72	0	18	1 3	0	.10	0	30.13	19	2.3	5.6	15	11	273	33	9	7	30

SUM	SUM				TOTAL	TOTAL		TOTAL	TOTAL	FOR THE MONTH:					TOTAL	%	SUM	SUM
2779	2242				0	567	NUMBER OF DAYS	2.66	0	30.03	27	3.6	6.9	28 36	15429	FOR	172	158
AVG.	AVG.	AVG.	DEP.	AVG.	DEP.	DEP.	PRECIPITATION	DEP.						DATE: 15	POSSIBLE FOR MONTH		AVG.	AVG.
92.6	74.7	83.7	2.7	72	0	87	≥.01 INCH 8	-3.83							24987	62	5.7	5.3
					SEASON TO DATE		SNOW, ICE PELLETS											
NUMBER OF DAYS					TOTAL	TOTAL	≥ 1.0 INCH 0	GREATEST IN 24 HOURS AND DATES						GREATEST DEPTH ON GROUND OF SNOW, ICE PELLETS OR ICE AND DATE				
MAXIMUM TEMP.		MINIMUM TEMP.			1011	1370	THUNDERSTORMS 15	PRECIPITATION		SNOW, ICE PELLETS								
≥ 90°	≤ 32°	≤ 32°	≤ 0°		DEP.	DEP.	HEAVY FOG 0	.99	15	0				0				
27	0	0	0		293	25	CLEAR 7 PARTLY CLOUDY 16 CLOUDY 7											

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.
T TRACE AMOUNT
+ ALSO ON AN EARLIER DATE, OR DATES.
HEAVY FOG: - VISIBILITY 1/4 MILE OR LESS.
FIGURES FOR WIND DIRECTIONS ARE TENS OF DEGREES CLOCKWISE FROM TRUE NORTH. 00 = CALM.
DATA IN COLS. 6 AND 12-15 ARE BASED ON 7 OR MORE OBSERVATIONS PER DAY AT 3-HOUR INTERVALS.
FASTEST MILE WIND SPEEDS ARE FASTEST OBSERVED ONE-MINUTE VALUES WHEN DIRECTIONS ARE IN TENS OF DEGREES. THE / WITH THE DIRECTION INDICATES PEAK GUST SPEED.
ANY ERRORS DETECTED WILL BE CORRECTED AND CHANGES IN SUMMARY DATA WILL BE ANNOTATED IN THE ANNUAL SUMMARY

SUMMARY BY HOURS

HOUR (LST)	AVERAGES SKY COVER (TENTHS)	STATION PRESSURE IN.	TEMPERATURE AIR °F	WET BULB °F	DEW PT. °F	RELATIVE HUMIDITY %	WIND SPEED M.P.H.	RESULTANT WIND DIRECTION	SPEED M.P.H.
01	4	30.03	77	73	72	85	4.3	24	.4
04	3	30.01	76	73	71	85	4.1	23	.8
07	5	30.04	78	74	72	83	4.6	02	.1
10	5	30.05	87	77	73	63	7.2	27	3.7
13	6	30.04	91	77	71	53	10.5	25	9.7
16	7	30.00	89	77	72	58	10.3	27	9.3
19	7	30.01	85	75	71	65	8.2	28	4.1
22	6	30.04	80	74	72	78	5.3	27	2.4

HOURLY PRECIPITATION (WATER EQUIVALENT IN INCHES)

DATE	A.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	P.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	DATE
1																									1
2																T									2
3																				T	.06				3
4														.27	.15	.02									4
5																									5
6																									6
7																	T								7
8			T																						8
9																									9
10																									10
11																									11
12																									12
13																									13
14																				T	.05	.01	T		14
15																	.09	.01							15
16															.20	.02	T	T	T	T	.70	.03	.04	T	16
17															T	.04	.01	.01	T						17
18																									18
19																									19
20																									20
21																									21
22																									22
23																									23
24																T									24
25																									25
26																									26
27																									27
28																									28
29																T	.22	.62	T	.01					29
30													.09	T						.01	T				30

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noaa NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION / ENVIRONMENTAL DATA SERVICE

Daniel B. Mitchell
DIRECTOR, NATIONAL CLIMATIC CENTER

USCOMM--NOAA--ASHEVILLE 07/18/77 425

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JULY 1977
TAMPA. FLORIDA
NAT WEATHER SERVICE MET OBSY
INTERNATIONAL AIRPORT

Local Climatological Data

MONTHLY SUMMARY

JULY 1977 TAMPA. FLORIDA

LATITUDE 27° 58' N LONGITUDE 82° 32' W ELEVATION (GROUND) 19 FT. STANDARD TIME USED: EASTERN WBAN #12842

DATE	TEMPERATURE °F MAXIMUM	MINIMUM	AVERAGE	DEPARTURE FROM NORMAL	AVERAGE DEW POINT	DEGREE DAYS BASE 65° HEATING (SEASON BEGINS WITH JUL)	COOLING (SEASON BEGINS WITH JAN)	WEATHER TYPES ON DATES OF OCCURRENCE 1 FOG 2 HEAVY FOG 3 THUNDERSTORM 4 ICE PELLETS 5 HAIL 6 GLAZE 7 DUSTSTORM 8 SMOKE, HAZE 9 BLOWING SNOW	SNOW, ICE PELLETS OR ICE ON GROUND AT 07AM IN.	PRECIPITATION WATER EQUIVALENT IN	SNOW, ICE PELLETS IN.	AVG. STATION PRESSURE IN. ELEV. 11 FEET M.S.L.	WIND RESULTANT DIR.	RESULTANT SPEED M.P.H.	AVERAGE SPEED M.P.H.	FASTEST MILE SPEED M.P.H.	FASTEST MILE DIRECTION	SUNSHINE MINUTES	PERCENT OF POSSIBLE	SKY COVER TENTHS SUNRISE TO SUNSET	MIDNIGHT TO MIDNIGHT	DATE
1	2	3	4	5	6	7A	7B	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1	91	74	83	2	71	0	18	1 3	0	.23	0	30.15	19	2.6	5.5	16	27	348	42	7	6	1
2	89	73	81	0	71	0	16	1 3	0	T	0	30.13	23	1.5	5.0	9	24	570	68	8	6	2
3	89	76	83	2	71	0	18	3 8	0	0	0	30.10	07	.8	6.3	18	13	406	48	8	9	3
4	91	72	82	0	71	0	17	1 3	0	.92	0	30.13	11	4.6	5.9	23	36	234	28	9	8	4
5	89	70*	80	-2	70	0	15	1 3 8	0	0	0	30.10	27	.4	6.0	13	26	537	65	4	4	5
6	89	74	82	0	73	0	17	3	0	.44	0	30.03	28	3.4	4.2	17	08	575	68	6	4	6
7	90	76	83	1	73	0	18	3 8	0	T	0	30.01	29	2.0	4.3	14	34	487	58	3	3	7
8	91	76	84	2	73	0	19	1 3	0	T	0	30.07	22	3.0	6.0	13	27	541	65	5	5	8
9	91	74	83	1	71	0	18	3	0	.54	0	30.14	09	2.8	6.3	17	07	530	64	8	5	9
10	92	74	83	1	72	0	18	3	0	0	0	30.14	02	.6	5.5	13	08	594	72	3	4	10
11	94	74	84	2	72	0	19	3 8	0	T	0	30.11	36	4.2	5.6	10	36	595	72	4	5	11
12	94	76	85	3	71	0	20	8	0	0	0	30.10	10	5.3	5.2	9	09	483	60	7	5	12
13	91	75	83	1	72	0	19	8	0	.03	0	30.10	07	5.5	6.0	13	12	259	31	9	6	13
14	94	77	86*	4	74	0	21	1 3 8	0	.28	0	30.08	06	5.4	5.8	24	03	341	41	6	5	14
15	93	75	84	2	73	0	19	1 3 8	0	.58	0	30.07	07	3.9	5.5	15	05	313	38	8	7	15
16	88	74	81	-1	72	0	16	1 3	0	.41	0	30.10	09	5.0	6.5	22	11	327	40	10	9	16
17	83	75	79*	-3	72	0	14	1 3	0	.50	0	30.10	09	4.3	5.8	14	11	98	12	10	9	17
18	91	74	83	1	73	0	18	1 3 8	0	1.08	0	30.11	13	6.0	6.6	23	26	384	48	9	8	18
19	91	73	82	0	73	0	17	1 3	0	.18	0	30.13	13	4.3	6.8	16	21	452	55	8	7	19
20	91	73	82	0	71	0	17	1 3	0	T	0	30.11	10	4.1	6.0	9	04	472	57	5	4	20
21	90	75	83	1	73	0	18	1 3	0	0	0	30.10	31	2.5	4.3	14	27	609	74	3	4	21
22	91	77	84	2	74	0	19	3	0	0	0	30.08	30	4.8	5.6	12	26	384	47	7	6	22
23	89	75	82	0	73	0	17	3	0	.16	0	30.05	35	3.1	5.9	18	03	221	27	9	7	23
24	92	74	83	1	72	0	18	1	0	0	0	30.01	06	8.5	8.6	15	06	446	55	8	5	24
25	90	74	82	0	73	0	17	1	0	0	0	30.02	14	1.5	6.9	12	20	375	46	7	4	25
26	92	78	85	3	73	0	20		0	0	0	30.04	21	3.5	5.9	10	24	643	79	4	2	26
27	92	76	84	2	74	0	19		0	0	0	30.04	23	3.2	4.8	10	25	712	88	5	5	27
28	94	76	85	3	73	0	20	3	0	.01	0	30.10	28	1.9	6.2	17	27	456	56	8	9	28
29	94*	76	85	3	74	0	20	1 8	0	0	0	30.11	18	2.0	5.8	12	28	647	80	7	7	29
30	92	76	84	2	74	0	19	3	0	T	0	30.07	25	2.5	3.5	10	26	612	75	7	6	30
31	89	79	84	2	75	0	19	3	0	T	0	30.04	19	1.5	3.9	12	19	285	33	8	8	31

SUM	SUM				TOTAL	TOTAL		TOTAL	TOTAL	FOR THE MONTH						TOTAL	% FOR MONTH	SUM	SUM
2816	2321				0	559	NUMBER OF DAYS	5.36	0	30.09	10	1.1	5.7	24	03	13937		202	183
AVG.	AVG.	AVG.	DEP.	AVG.	DEP.	DEP.	PRECIPITATION ≥ .01 INCH 13	DEP.						DATE: 14		POSSIBLE FOR MONTH		AVG.	AVG.
90.8	74.9	82.9	1.0	72	0	35		-3.07								25514	55	6.5	5.9

				SEASON TO DATE		SNOW, ICE PELLETS ≥ 1.0 INCH	0
NUMBER OF DAYS				TOTAL	TOTAL	THUNDERSTORMS	24
MAXIMUM TEMP.		MINIMUM TEMP.		0	1929	HEAVY FOG	0
≥ 90°	≤ 32°	≤ 32°	≤ 0°	DEP.	DEP.	CLEAR 3	PARTLY CLOUDY 18 CLOUDY 10
23	0	0	0	0	60		

GREATEST IN 24 HOURS AND DATES				GREATEST DEPTH ON GROUND OF SNOW, ICE PELLETS OR ICE AND DATE	
PRECIPITATION		SNOW, ICE PELLETS			
1.09	17-18	0		0	

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.
T TRACE AMOUNT
+ ALSO ON AN EARLIER DATE, OR DATES.
HEAVY FOG: - VISIBILITY 1/4 MILE OR LESS.
FIGURES FOR WIND DIRECTIONS ARE TENS OF DEGREES CLOCKWISE FROM TRUE NORTH. 00 = CALM.
DATA IN COLS. 6 AND 12-15 ARE BASED ON 7 OR MORE OBSERVATIONS PER DAY AT 3-HOUR INTERVALS.
FASTEST MILE WIND SPEEDS ARE FASTEST OBSERVED ONE-MINUTE VALUES WHEN DIRECTIONS ARE IN TENS OF DEGREES. THE / WITH THE DIRECTION INDICATES PEAK GUST SPEED.
ANY ERRORS DETECTED WILL BE CORRECTED AND CHANGES IN SUMMARY DATA WILL BE ANNOTATED IN THE ANNUAL SUMMARY

PILOT REPORTED FUNNEL CLOUD NEAR RIVERVIEW AT 1550 EST ON JULY 3RD.

ST. PETERSBURG TOWER REPORTED FUNNEL CLOUD NE OF STATION AT 1325EST ON JULY 8TH.

TOWER REPORTED FUNNEL CLOUD OVER MACDILL AFB AT 1535 EST ON JULY8TH

SUMMARY BY HOURS

HOUR LOCAL TIME	AVERAGES SKY COVER (TENTHS)	STATION PRESSURE IN.	TEMPERATURE AIR °F	WET BULB °F	DEW PT. °F	RELATIVE HUMIDITY %	WIND SPEED M.P.H.	RESULTANT WIND DIRECTION	SPEED M.P.H.
01	5	30.09	77	74	72	85	3.4	05	2.3
04	4	30.08	75	73	72	89	3.4	08	2.5
07	5	30.10	77	74	72	85	4.3	09	3.5
10	6	30.12	86	77	74	67	6.8	13	3.0
13	7	30.10	89	77	73	51	8.1	25	3.1
16	8	30.07	85	76	72	67	9.0	28	1.2
19	8	30.07	82	75	72	73	6.7	01	1.9
22	6	30.09	79	74	72	80	4.0	10	2.1

HOURLY PRECIPITATION (WATER EQUIVALENT IN INCHES)

DATE	A.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	P.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	DATE
1																	.02	.05	.15	.01	T				1
2																		T							2
3																									3
4														.02	.77	.03	.05	.04	.01	T					4
5																									5
6													.44												6
7																	T								7
8																T									8
9																.15	.38	.01	T						9
10																									10
11																					T				11
12																									12
13																.03									13
14																.28									14
15															T	T	.50	.01	.03	.04					15
16														.32	.04	.02	.01	.02							16
17												T	.17		.02	.29	.01			T	.01				17
18															.63	.05	.21	.11	.07	.01					18
19																.17	T				T	.01			19
20																	T								20
21																									21
22																									22
23												.02	.08	.01			T	T	T	.05	T				23
24																									24
25																									25
26																									26
27																									27
28																		T	.01		T	T			28
29																									29
30																T									30
31											T		T												31

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Daniel B. Mitchell
DIRECTOR, NATIONAL CLIMATIC CENTER

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USCOMM--NOAA--ASHEVILLE 08/18/77 425

AUGUST 1977
TAMPA, FLORIDA
NAT WEATHER SERVICE MET OBSY
INTERNATIONAL AIRPORT

Local Climatological Data

MONTHLY SUMMARY

AUGUST 1977 TAMPA, FLORIDA

LATITUDE 27° 58' N LONGITUDE 82° 32' W ELEVATION (GROUND) 19 FT. STANDARD TIME USED: EASTERN WBAN #12842

Date	Temperature °F Maximum	Minimum	Average	Departure from normal	Average dew point	Degree days base 65° Heating (season begins with July)	Cooling (season begins with Jan.)	Weather types on dates of occurrence: 1 Fog 2 Heavy fog 3 Thunderstorm 4 Ice pellets 5 Hail 6 Glaze 7 Duststorm 8 Smoke, haze 9 Blowing snow	Snow, ice pellets or ice on ground at 07AM In.	Precipitation Water equivalent In.	Snow, ice pellets In.	Avg. station pressure In. Elev. 33 feet m.s.l.	Wind Resultant dir.	Resultant speed M.P.H.	Average speed M.P.H.	Fastest mile Speed M.P.H.	Direction	Sunshine Minutes	Percent of possible	Sky cover tenths Sunrise to sunset	Midnight to midnight	Date
1	2	3	4	5	6	7A	7B	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1	84	76	80	-2	73	0	15		0	.68	0	30.05	21	3.4	5.9	18	27	158	20	9	8	1
2	91	73	82	0	73	0	17		0	0	0	30.03	16	5.1	5.5	10	18	609	76	5	4	2
3	91	79	85	3	74	0	20	3	0	T	0	30.08	15	5.1	6.0	13	14	375	47	10	8	3
4	94	75	85	3	72	0	20	1 3 8	0	.18	0	30.11	11	7.4	8.8	17	14	358	45	8	8	4
5	93	77	85	3	73	0	20	3	0	.65	0	30.14	09	6.3	7.5	29	09	382	48	8	4	5
6	93	76	85	3	74	0	20	3	0	.09	0	30.13	09	6.7	7.3	14	07	455	57	8	4	6
7	91	76	84	2	74	0	19		0	0	0	30.10	07	7.6	7.8	15	08	343	43	7	5	7
8	90	76	83	1	74	0	18	1 3 8	0	.18	0	30.07	08	3.8	4.6	8	36	242	30	8	8	8
9	91	75	83	1	73	0	18	1 3 8	0	.33	0	30.05	07	3.8	5.9	16	14	312	38	9	9	9
10	92	75	84	2	73	0	19	1 3	0	.12	0	30.09	13	3.7	5.6	12	15	381	48	9	9	10
11	93	74	84	2	71	0	19	3	0	.04	0	30.12	13	6.8	7.8	29	09	347	44	9	8	11
12	89	71*	80	-2	71	0	15	1 3	0	.08	0	30.08	09	3.6	4.6	16	10	274	35	7	8	12
13	87	74	81	-2	73	0	16	2	0	.06	0	30.01	13	5.8	7.6	15	18	383	50	8	9	13
14	91	76	84	1	73	0	19	1 3 8	0	.26	0	30.06	13	2.5	7.2	14	07	486	61	5	6	14
15	94*	75	85	2	74	0	20	1 3	0	.87	0	30.13	13	2.9	6.5	16	27	565	72	6	4	15
16	91	76	84	1	73	0	19	1 8	0	0	0	30.14	28	2.8	5.3	9	36	507	64	3	2	16
17	91	73	82	-1	72	0	17	1	0	0	0	30.07	30	2.2	4.3	9	25	618	79	6	5	17
18	90	77	84	1	73	0	19		0	0	0	30.03	22	3.7	5.8	10	28	715	91	2	2	18
19	91	77	84	2	73	0	19		0	0	0	30.03	21	6.4	7.5	13	22	566	72	8	7	19
20	88	78	83	1	74	0	18		0	.02	0	30.02	25	5.3	6.9	13	34	194	25	10	8	20
21	87	77	82	0	73	0	17	3	0	.76	0	29.98	27	6.6	8.6	17	25	60	8	10	10	21
22	80	76	78*	-4	74	0	13	3	0	1.32	0	29.87	25	8.8	10.4	18	26	0	0	10	10	22
23	87	76	82	0	75	0	17	1	0	T	0	29.97	22	3.5	5.8	12	31	411	53	8	7	23
24	92	75	84	2	73	0	19	3	0	.05	0	30.00	15	2.7	6.2	15	15	532	68	8	8	24
25	92	77	85	3	74	0	20	3	0	T	0	30.04	13	5.2	6.9	14	12	604	78	7	8	25
26	93	76	85	3	72	0	20	1	0	0	0	30.08	08	8.8	8.9	15	07	571	74	8	8	26
27	88	77	83	1	74	0	18		0	.01	0	30.07	08	12.2	12.7	21	09	240	32	9	6	27
28	91	76	84	2	73	0	19	1 3	0	T	0	30.09	10	10.7	11.4	21	12	342	44	9	8	28
29	89	75	82	0	74	0	17	3	0	.30	0	30.08	09	7.7	7.9	18	12	143	19	10	10	29
30	90	76	83	1	74	0	18	3	0	.17	0	30.01	09	8.2	9.2	15	10	244	32	7	7	30
31	92	77	85*	3	73	0	20	1	0	.02	0	30.00	09	10.2	10.5	18	10	507	65	5	3	31

Sum	Sum	—	—	—	Total	Total		Total	Total	For the month:						Total	%	Sum	Sum
2798	2347	—	—	—	0	565	Number of days	5.98	0	30.09	11	3.2	7.3	29	09	11944	for	234	229
Avg.	Avg.	Avg.	Dep.	Avg.	Dep.	Dep.	Precipitation	Dep.	—	—	—	—	—	Date: 11+		Possible for month		Avg.	Avg.
90.2	75.7	83.0	0.8	73	0	32	≥ .01 inch 20	-2.22	—	—	—	—	—	—		24392	49	7.5	6.7

				Season to date		Snow, ice pellets	
Number of days				Total	Total	≥ 1.0 inch	0
Maximum temp.		Minimum temp.		0	2484	Thunderstorms	18
≥ 90°	≤ 32°	≤ 32°	≤ 0°	Dep.	Dep.	Heavy fog	1
22	0	0	0	0	92	Clear 2 Partly cloudy 11 Cloudy 18	

Greatest in 24 hours and dates Precipitation		Snow, ice pellets	Greatest depth on ground of snow, ice pellets or ice and date	
1.90	21-22	0	0	

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.
T TRACE AMOUNT
+ ALSO ON AN EARLIER DATE, OR DATES.
HEAVY FOG: - VISIBILITY 1/4 MILE OR LESS.
FIGURES FOR WIND DIRECTIONS ARE TENS OF DEGREES CLOCKWISE FROM TRUE NORTH. 00 = CALM.
DATA IN COLS. 6 AND 12-15 ARE BASED ON 7 OR MORE OBSERVATIONS PER DAY AT 3-HOUR INTERVALS.
FASTEST MILE WIND SPEEDS ARE FASTEST OBSERVED ONE-MINUTE VALUES WHEN DIRECTIONS ARE IN TENS OF DEGREES. THE / WITH THE DIRECTION INDICATES PEAK GUST SPEED.
ANY ERRORS DETECTED WILL BE CORRECTED AND CHANGES IN SUMMARY DATA WILL BE ANNOTATED IN THE ANNUAL SUMMARY

PUBLIC REPORTED FUNNEL CLOUD AT FLETCHER AND NORTHBRIDGE AT 1745 EST ON AUG. 3RD.

FUNNEL CLOUD SIGHTED BY TOWER PERSONNEL 5 MILES NE OF STATION AT 1012 EST ON AUG. 19TH.

SUMMARY BY HOURS

Hour (local time)	Averages Sky cover (tenths)	Station pressure In.	Temperature Air °F	Wet bulb °F	Dew pt. °F	Relative humidity %	Wind speed M.P.H.	Resultant wind Direction	Speed M.P.H.
01	9	30.06	78	74	73	84	5.5	10	3.6
04	4	30.04	77	74	73	88	5.2	09	3.6
07	6	30.06	77	74	73	89	6.5	10	3.9
10	7	30.09	84	77	73	73	9.8	12	5.6
13	7	30.06	88	78	74	64	10.2	15	4.5
16	9	30.03	85	78	73	68	9.6	18	1.8
19	9	30.04	81	76	73	79	6.0	10	2.2
22	9	30.06	79	75	73	81	5.7	09	2.4

HOURLY PRECIPITATION (WATER EQUIVALENT IN INCHES)

Date	A.M. hour ending at 1	2	3	4	5	6	7	8	9	10	11	12	P.M. hour ending at 1	2	3	4	5	6	7	8	9	10	11	12	Date
1										.40	.11	.16	.01	T	T										1
2																									2
3		T	T	T	T													T							3
4	.02	.04	.06												.07	T									4
5															T	.03		.12	.50						5
6																.01	.08		T						6
7																									7
8													.07	.04	.03	.03	.01	T							8
9														.29	.04	T				T					9
10														T	T		.04	.06	T	.01	.01				10
11																.02	.02	T	T	T					11
12								T							T		.05	.01							12
13														.06	T										13
14														.02					.03	T	T		.21		14
15																	.87	T	T						15
16																									16
17																									17
18																									18
19																									19
20																	.02					T			20
21			.02							.10	.04	.01	.01	T								T	.46	.12	21
22	.03	.01	T	T			.13	.22	.01	.20	.38	.13	.16	T	.01	.02	T	.01	.01	T					22
23																	T								23
24																		.05	T						24
25																T	T								25
26																									26
27																T	T	.01							27
28				T												T		T							28
29														T	.18	.12	T								29
30												T	T	.16			T			T	.01				30
31																	T		.02						31

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noaa NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION / ENVIRONMENTAL DATA SERVICE

Daniel B. Mitchell
DIRECTOR, NATIONAL CLIMATIC CENTER

USCOMM--NOAA--ASHEVILLE 09/23/77 425

SEPTEMBER 1977
TAMPA, FLORIDA
NAT WEATHER SERVICE MET OBSY
INTERNATIONAL AIRPORT

Local Climatological Data

MONTHLY SUMMARY

SEPTEMBER 1977 TAMPA, FLORIDA

LATITUDE 27° 58' N LONGITUDE 82° 32' W ELEVATION (GROUND) 19 FT. STANDARD TIME USED: EASTERN WBAN #12842

DATE 1	TEMPERATURE °F MAXIMUM 2	MINIMUM 3	AVERAGE 4	DEPARTURE FROM NORMAL 5	AVERAGE DEW POINT 6	DEGREE DAYS BASE 65° HEATING (SEASON BEGINS WITH JUL 1) 7A	COOLING (SEASON BEGINS WITH JAN 1) 7B	WEATHER TYPES ON DATES OF OCCURRENCE 1 FOG 2 HEAVY FOG 3 THUNDERSTORM 4 ICE PELLETS 5 HAIL 6 GLAZE 7 DUSTSTORM 8 SMOKE, HAZE 9 BLOWING SNOW 8	SNOW, ICE PELLETS OR ICE ON GROUND AT 07AM IN. 9	PRECIPITATION WATER EQUIVALENT IN. 10	SNOW, ICE PELLETS IN. 11	AVG. STATION PRESSURE IN. ELEV. 33 FEET M.S.L. 12	WIND RESULTANT DIR. 13	RESULTANT SPEED M.P.H. 14	AVERAGE SPEED M.P.H. 15	FASTEST MILE SPEED M.P.H. 16	FASTEST MILE DIRECTION 17	SUNSHINE MINUTES 18	PERCENT OF POSSIBLE 19	SKY COVER TENTHS SUNRISE TO SUNSET 20	MIDNIGHT TO MIDNIGHT 21	DATE 22
1	90	77	84	2	73	0	19		0	.01	0	30.00	07	11.9	12.1	22	08	400	52	7	9	1
2	78	75	77*	-5	72	0	12	1 3	0	.52	0	29.98	30	9.3	13.4	23	13	0	0	10	10	2
3	84	73	79	-3	72	0	14	1	0	1.05	0	30.00	13	5.7	8.5	21	22	18	3	10	10	3
4	89	74	82	0	75	0	17	23 8	0	.03	0	30.00	14	3.4	4.8	13	01	313	41	9	8	4
5	90	74	82	0	74	0	17	1	0	0	0	29.98	14	3.0	4.0	8	15	572	78	8	8	5
6	92	76	84	2	75	0	19	1	0	0	0	30.01	22	3.1	4.8	8	15	629	83	5	4	6
7	91	78	85	3	76	0	20	8	0	0	0	30.05	26	3.2	4.0	10	27	589	78	5	4	7
8	91	78	85	3	75	0	20		0	0	0	30.03	27	5.5	5.8	12	27	669	89	3	2	8
9	91	78	85	3	75	0	20		0	0	0	30.04	27	7.1	7.3	12	27	653	87	4	2	9
10	91	76	84	2	74	0	19	1 8	0	0	0	30.05	30	3.7	4.3	12	28	581	75	4	2	10
11	94*	72	83	2	73	0	18		0	0	0	30.04	33	3.2	4.8	13	36	518	69	3	2	11
12	92	73	83	2	73	0	18	3 8	0	.78	0	30.05	10	2.3	2.7	25	17	277	37	5	5	12
13	91	76	84	3	74	0	19	1 8	0	0	0	30.03	11	.8	4.0	12	30	392	53	8	5	13
14	92	78	85	4	74	0	20	1 8	0	0	0	30.00	14	2.3	4.8	5	14	466	63	7	5	14
15	92	77	85	4	74	0	20	3 8	0	.08	0	30.07	12	4.5	5.3	18	16	382	52	8	7	15
16	92	77	85*	4	74	0	20	3 8	0	.08	0	30.12	11	5.2	5.3	18	10	313	42	7	8	16
17	91	73	82	1	74	0	17	3 8	0	.18	0	30.08	27	4.1	5.5	17	06	417	57	7	8	17
18	91	73	82	1	73	0	17	1 3 8	0	1.23	0	30.00	11	.7	3.2	20	08	393	53	6	8	18
19	88	73	81	0	73	0	16	1	0	0	0	29.95	21	1.4	2.8	8	26	467	62	7	6	19
20	88	74	81	1	73	0	16	3	0	T	0	29.95	34	.8	2.2	9	15	178	24	8	8	20
21	90	75	83	3	73	0	18	1 3 8	0	T	0	29.97	29	.5	2.0	13	10	278	38	8	9	21
22	90	75	83	3	72	0	18	23 8	0	T	0	29.98	11	2.5	4.3	16	14	321	44	7	7	22
23	91	72	82	2	71	0	17	1 3 8	0	T	0	29.96	20	1.9	3.3	10	27	432	58	5	4	23
24	90	74	82	2	72	0	17	1 8	0	.07	0	29.95	13	1.8	4.0	9	34	374	52	7	6	24
25	89	75	82	2	73	0	17	1 3 8	0	.10	0	29.92	33	2.3	2.7	8	08	240	34	8	9	25
26	89	74	82	3	72	0	17	3 8	0	.15	0	29.92	35	1.5	4.6	14	36	252	35	8	8	26
27	88	73	81	2	73	0	16	1 3 8	0	T	0	29.94	20	2.2	2.8	9	19	433	60	5	4	27
28	88	74	81	2	73	0	16		0	0	0	29.94	31	2.3	2.7	12	29	460	65	5	3	28
29	91	73	82	3	69	0	17	1 8	0	0	0	29.93	30	1.9	2.3	12	33	636	89	3	4	29
30	91	69*	80	2	67	0	15	1 8	0	0	0	29.95	35	1.3	5.8	14	35	606	85	2	1	30

SUM	SUM				TOTAL	TOTAL	
2695	2240				0	526	NUMBER OF DAYS
AVG.	AVG.	AVG.	DEP.	AVG.	DEP.	DEP.	PRECIPITATION ≥ .01 INCH 12
89.8	74.7	82.3	1.5	73	0	52	
					SEASON TO DATE		SNOW, ICE PELLETS ≥ 1.0 INCH 0
NUMBER OF DAYS					TOTAL	TOTAL	
MAXIMUM TEMP.		MINIMUM TEMP.			0	3020	THUNDERSTORMS 14
≥ 90°	≤ 32°	≤ 32°	≤ 0°		DEP.	DEP.	HEAVY FOG 2
21	0	0	0		0	144	CLEAR 4 PARTLY CLOUDY 17 CLOUDY 9

PRECIPITATION TOTAL	SNOW, ICE PELLETS TOTAL	FOR THE MONTH: PRESSURE	RESULTANT DIR.	RESULTANT SPEED	AVERAGE SPEED	FASTEST MILE SPEED	DIRECTION	SUNSHINE TOTAL	% FOR MONTH	SKY COVER SUM	SUM
4.29	0	30.00	12	1.2	4.9	25	17	12256		193	171
DEP.						DATE:	12	POSSIBLE MONTH		AVG.	AVG.
-2.27								22179	55	6.4	5.7

GREATEST IN 24 HOURS AND DATES PRECIPITATION		SNOW, ICE PELLETS	GREATEST DEPTH ON GROUND OF SNOW, ICE PELLETS OR ICE AND DATE
1.29	2- 3	0	0

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.
T TRACE AMOUNT
+ ALSO ON AN EARLIER DATE, OR DATES.
HEAVY FOG: - VISIBILITY 1/4 MILE OR LESS.
FIGURES FOR WIND DIRECTIONS ARE TENS OF DEGREES CLOCKWISE FROM TRUE NORTH. 00 = CALM.
DATA IN COLS. 6 AND 12-15 ARE BASED ON 7 OR MORE OBSERVATIONS PER DAY AT 3-HOUR INTERVALS.
FASTEST MILE WIND SPEEDS ARE FASTEST OBSERVED ONE-MINUTE VALUES WHEN DIRECTIONS ARE IN TENS OF DEGREES. THE / WITH THE DIRECTION INDICATES PEAK GUST SPEED.
ANY ERRORS DETECTED WILL BE CORRECTED AND CHANGES IN SUMMARY DATA WILL BE ANNOTATED IN THE ANNUAL SUMMARY

FUNNEL CLOUD BEGAN 1315 ENDED 1325 EST ON SEPT. 20TH.

SUMMARY BY HOURS

HOUR (LOCAL TIME)	AVERAGES SKY COVER (TENTHS)	STATION PRESSURE IN.	TEMPERATURE DRY BULB °F	WET BULB °F	DEW PT. °F	RELATIVE HUMIDITY %	WIND SPEED M.P.H.	RESULTANT WIND DIRECTION	SPEED M.P.H.
01	4	30.00	77	74	72	86	3.8	10	3.0
04	4	29.98	75	73	72	88	2.2	10	1.8
07	6	30.01	76	74	73	90	3.3	10	2.4
10	5	30.04	85	78	75	73	6.4	11	2.8
13	7	30.03	88	78	74	65	6.8	22	2.8
16	7	29.96	87	77	73	65	7.8	30	2.7
19	7	29.99	81	75	72	76	4.6	03	1.3
22	5	30.01	79	74	72	83	3.2	28	1.8

HOURLY PRECIPITATION (WATER EQUIVALENT IN INCHES)

DATE	A.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	P.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	DATE
1														T	T		.01								1
2			T	T				.01	T	T	T	.01	.01	.01	T	.01	.28	.13	.02	.04	T	T		.03	2
3	.03	.02	.01	T	T										.48	.34	T	.15	.31	T	.01				3
4												.02	.01						T						4
5																									5
6																									6
7																									7
8																									8
9																									9
10																									10
11																									11
12															.75	.02	T	T	T						12
13																									13
14																									14
15															-		.08								15
16														.01	.07										16
17																.04	T			T	.06	.06	.02	T	17
18																	.43	.18	.48	.09	.05	.01			18
19																									19
20															T										20
21																				T	T				21
22																T									22
23																T									23
24																T							T	.07	24
25	.09	.01	T																						25
26														T						.06	.09				26
27						T							T	T											27
28																									28
29																									29
30																									30

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Daniel B. Mitchell
DIRECTOR, NATIONAL CLIMATIC CENTER

USCOMM--NOAA--ASHEVILLE 10/20/77 425

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OCTOBER 1977
TAMPA, FLORIDA
NAT WEATHER SERVICE MET OBSY
INTERNATIONAL AIRPORT

Local Climatological Data

MONTHLY SUMMARY

LATITUDE 27° 58 'N LONGITUDE 82° 32 'W ELEVATION (GROUND) 19 FT. STANDARD TIME USED: EASTERN WBAN #12842

Weather types on dates of occurrence: 1 FOG, 2 HEAVY FOG, 3 THUNDERSTORM, 4 ICE PELLETS, 5 HAIL, 6 GLAZE, 7 DUSTSTORM, 8 SMOKE, HAZE, 9 BLOWING SNOW

DATE	TEMPERATURE °F MAXIMUM	MINIMUM	AVERAGE	DEPARTURE FROM NORMAL	AVERAGE DEW POINT	DEGREE DAYS BASE 65° HEATING (SEASON BEGINS WITH JULY)	COOLING (SEASON BEGINS WITH JAN.)	WEATHER TYPES ON DATES OF OCCURRENCE	SNOW, ICE PELLETS OR ICE ON GROUND AT 07AM IN.	PRECIPITATION WATER EQUIVALENT IN.	SNOW, ICE PELLETS IN.	AVG. STATION PRESSURE IN. ELEV. 11 FEET M.S.L.	WIND RESULTANT DIR.	RESULTANT SPEED M.P.H.	AVERAGE SPEED M.P.H.	FASTEST MILE SPEED M.P.H.	FASTEST MILE DIRECTION	SUNSHINE MINUTES	PERCENT OF POSSIBLE	SKY COVER TENTHS SUNRISE TO SUNSET	MIDNIGHT TO MIDNIGHT	DATE
1	2	3	4	5	6	7A	7B	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1	91*	76	84*	8	72	0	19	8	0	0	0	29.99	21	2.1	4.5	8	29	485	68	5	4	1
2	90	73	82	4	73	0	17	1 8	0	0	0	30.03	27	4.8	4.8	12	27	538	78	6	5	2
3	87	69	78	0	70	0	13		0	.05	0	29.96	35	8.0	8.5	14	35	430	62	4	4	3
4	83	63	73	-5	57	0	8		0	0	0	30.05	05	9.5	9.8	14	05	561	71	3	2	4
5	84	62	73	-4	58	0	8		0	0	0	30.13	06	7.7	7.9	13	05	565	73	1	1	5
6	85	64	75	-2	60	0	10		0	0	0	30.13	08	8.2	8.3	10	07	320	46	8	8	6
7	86	66	76	-1	63	0	11		0	0	0	30.07	07	8.5	8.8	12	09	333	47	6	4	7
8	87	66	77	0	65	0	12		0	0	0	29.98	09	2.1	6.5	13	22	560	78	3	2	8
9	87	68	78	1	70	0	13	1 8	0	0	0	29.90	21	4.5	9.8	12	24	488	71	7	6	9
10	88	78	83	7	73	0	18	1	0	T	0	29.91	23	2.8	6.3	13	25	285	38	7	5	10
11	89	71	80	4	71	0	15	1 8	0	0	0	29.88	29	2.9	5.2	13	29	452	59	9	4	11
12	88	70	79	2	71	0	13	1 3 8	0	.36	0	29.82	36	2.2	5.6	17	02	64	9	8	9	12
13	72	54	63	-13	48	2	0		0	0	0	29.98	35	10.5	11.2	21	35	684	100	0	2	13
14	72	48	60*	-15	49	5	0		0	0	0	30.20	31	7.3	9.3	14	33	533	77	1	1	14
15	75	47	61	-14	47	4	0		0	0	0	30.13	34	2.5	6.3	12	31	691	100	0	0	15
16	81	51	66	-9	53	0	1		0	0	0	30.07	33	7.2	7.3	17	34	501	73	4	3	16
17	72	49	61	-14	41	4	0		0	0	0	30.12	01	8.8	8.8	13	30	688	100	3	3	17
18	76	47*	62	-12	46	3	0		0	0	0	30.08	01	2.3	5.3	10	27	489	71	5	4	18
19	82	52	67	-7	55	0	2	8	0	0	0	30.03	32	2.8	4.6	13	32	508	74	3	2	19
20	83	59	71	-3	58	0	6	1 8	0	0	0	30.07	02	4.2	5.6	13	36	247	36	9	7	20
21	82	63	73	0	59	0	8		0	0	0	30.14	08	8.4	8.8	14	09	88	13	9	9	21
22	79	67	73	0	63	0	8		0	.01	0	30.14	07	7.0	7.3	10	08	1	0	10	9	22
23	83	66	75	2	68	0	10	8	0	T	0	30.08	08	11.2	11.4	18	07	227	33	7	7	23
24	81	72	77	4	70	0	12	1 8	0	T	0	30.06	08	10.8	11.2	18	07	24	4	10	10	24
25	87	73	80	8	72	0	15	1 8	0	T	0	30.00	08	4.8	7.2	12	13	58	9	10	9	25
26	83	66	74	2	70	0	9	2 8	0	T	0	29.93	28	5.8	6.6	13	28	0	0	10	7	26
27	81	59	70	-2	61	0	5		0	0	0	29.90	31	3.9	5.2	15	28	250	37	3	2	27
28	82	58	70	-2	60	0	5	1	0	0	0	29.93	31	5.6	6.5	17	29	268	40	3	2	28
29	79	60	70	-1	61	0	5	2 8	0	0	0	29.97	02	2.3	4.8	8	35	43	6	10	7	29
30	83	62	73	2	61	0	8	1 8	0	0	0	30.00	08	6.0	6.2	14	07	136	20	7	6	30
31	83	62	72	1	61	0	7	8	0	0	0	30.01	08	11.3	11.5	19	09	137	20	8	4	31

SUM	SUM				TOTAL	TOTAL
2557	1938				18	259
AVG.	AVG.	AVG.	DEP.	AVG.	DEP.	DEP.
82.5	62.5	72.5	-2.2	61	18	-43
					SEASON TO DATE	
NUMBER OF DAYS					TOTAL	TOTAL
MAXIMUM TEMP.		MINIMUM TEMP.			18	3279
≥ 90°	≤ 32°	≤ 32°	≤ 0°		DEP.	DEP.
2	0	0	0		18	101

NUMBER OF DAYS
PRECIPITATION ≥ .01 INCH 3
SNOW, ICE PELLETS ≥ 1.0 INCH 0
THUNDERSTORMS 1
HEAVY FOG 2
CLEAR 10 PARTLY CLOUDY 12 CLOUDY 11

PRECIPITATION TOTAL	SNOW, ICE PELLETS TOTAL	FOR THE MONTH:						SUNSHINE TOTAL	%	SKY COVER SUM	SUM
.42	0	30.02	03	3.4	7.3	21	36	12524	72	175	141
DEP.						DATE: 13		POSSIBLE MONTH		AVG.	AVG.
-2.12								17375	72	5.5	4.5

GREATEST IN 24 HOURS AND DATES				GREATEST DEPTH ON GROUND OF SNOW, ICE PELLETS OR ICE AND DATE	
PRECIPITATION		SNOW, ICE PELLETS			
.38	12	0		0	

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.
T TRACE AMOUNT
+ ALSO ON AN EARLIER DATE, OR DATES.
HEAVY FOG: - VISIBILITY 1/4 MILE OR LESS.
FIGURES FOR WIND DIRECTIONS ARE TENS OF DEGREES CLOCKWISE FROM TRUE NORTH. 00 = CALM.
DATA IN COLS. 6 AND 12-15 ARE BASED ON 7 OR MORE OBSERVATIONS PER DAY AT 3-HOUR INTERVALS.
FASTEST MILE WIND SPEEDS ARE FASTEST OBSERVED ONE-MINUTE VALUES WHEN DIRECTIONS ARE IN TENS OF DEGREES. THE / WITH THE DIRECTION INDICATES PEAK GUST SPEED.
ANY ERRORS DETECTED WILL BE CORRECTED AND CHANGES IN SUMMARY DATA WILL BE ANNOTATED IN THE ANNUAL SUMMARY

SUMMARY BY HOURS

HOUR LOCAL TIME	AVERAGES SKY COVER (TENTHS)	STATION PRESSURE IN.	TEMPERATURE AIR °F	WET BULB °F	DEW PT. °F	RELATIVE HUMIDITY %	WIND SPEED M.P.H.	RESULTANT WIND DIRECTION	SPEED M.P.H.
01	3	30.02	67	63	61	83	5.3	36	3.3
04	3	30.01	65	62	60	89	5.4	35	3.8
07	5	30.04	65	62	61	90	4.4	35	3.3
10	6	30.07	76	65	62	68	8.4	05	4.7
13	6	30.02	81	68	62	55	10.2	31	2.9
16	6	29.98	80	68	61	54	10.8	24	5.4
19	5	30.01	72	65	61	68	7.1	31	4.3
22	3	30.04	68	64	61	79	5.4	24	4.2

HOURLY PRECIPITATION (WATER EQUIVALENT IN INCHES)

DATE	A.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	P.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	DATE
1																									1
2																									2
3							.03	T	T	.02	T														3
4																									4
5																									5
6																									6
7																									7
8																									8
9																									9
10																	T								10
11																									11
12										.04	.07		.02	T	.23		T		T	T					12
13																									13
14																									14
15																									15
16																									16
17																									17
18																									18
19																									19
20																									20
21																									21
22								T	T	T	T	.01	T												22
23															T	T								T	23
24	T	T											T	T	T	T			T						24
25												T	T												25
26														T											26
27																									27
28																									28
29																									29
30																									30
31																									31

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Daniel B. Mitchell
DIRECTOR, NATIONAL CLIMATIC CENTER

noaa NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION / ENVIRONMENTAL DATA SERVICE

USCOMM--NOAA--ASHEVILLE 11/17/77 425

APPENDIX B

STATISTICAL ANALYSIS OF TSP AND SO_2 MEASUREMENTS

NOVEMBER 1977
TAMPA, FLORIDA
NAT WEATHER SERVICE MET OBST
INTERNATIONAL AIRPORT

Local Climatological Data

MONTHLY SUMMARY

NOVEMBER 1977 TAMPA, FLORIDA

LATITUDE 27° 58' N LONGITUDE 82° 32' W ELEVATION (GROUND) 19 FT. STANDARD TIME USED: EASTERN WBAN #12842

DATE	TEMPERATURE °F MAXIMUM	MINIMUM	AVERAGE	DEPARTURE FROM NORMAL	AVERAGE DEW POINT	DEGREE DAYS BASE 65° HEATING (SEASON BEGINS WITH JULY)	COOLING (SEASON BEGINS WITH JAN.)	WEATHER TYPES ON DATES OF OCCURRENCE 1 FOG 2 HEAVY FOG 3 THUNDERSTORM 4 ICE PELLETS 5 HAIL 6 GLAZE 7 DUSTSTORM 8 SMOKE, HAZE 9 BLOWING SNOW	SNOW, ICE PELLETS OR ICE ON GROUND AT 07AM IN.	PRECIPITATION WATER EQUIVALENT IN.	SNOW, ICE PELLETS IN.	AVG. STATION PRESSURE IN. ELEV. 11 FEET M.S.L.	WIND RESULTANT DIR.	RESULTANT SPEED M.P.H.	AVERAGE SPEED M.P.H.	FASTEST MILE SPEED M.P.H.	FASTEST MILE DIRECTION	SUNSHINE MINUTES	PERCENT OF POSSIBLE	SKY COVER TENTHS SUNRISE TO SUNSET	MIDNIGHT TO MIDNIGHT	DATE
1	2	3	4	5	6	7A	7B	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1	72	56	64	-6	50	1	0	1	0	0	0	29.95	11	7.5	7.8	15	03	12	2	10	8	1
2	83	64	74	4	62	0	9	2 8	0	0	0	29.90	36	2.3	4.8	9	26	272	41	9	8	2
3	81	66	74	4	67	0	9	1 8	0	.28	0	29.81	35	2.4	6.2	13	31	0	0	10	8	3
4	84*	71	78*	8	70	0	13	1	0	.15	0	29.88	19	4.9	7.6	14	27	33	5	10	8	4
5	80	66	73	4	65	0	8	1	0	0	0	29.93	20	4.4	4.9	9	19	304	48	2	3	5
6	81	66	73	4	65	0	8		0	0	0	29.87	20	4.6	7.5	14	22	221	34	4	3	6
7	80	63	72	3	68	0	7	1 8	0	T	0	29.89	29	2.0	4.3	10	30	35	5	8	5	7
8	81	59	70	1	61	0	5	1	0	0	0	29.96	34	1.2	4.3	8	28	303	48	1	1	8
9	83	61	72	4	64	0	7	1 8	0	0	0	30.01	15	.7	5.8	12	29	228	35	5	9	9
10	78	54	66	-2	59	0	1		0	T	0	30.08	34	6.2	9.9	23	31	1	0	10	9	10
11	62	46	54*	-14	28	11	0		0	0	0	30.23	11	11.8	12.5	18	36	146	22	8	7	11
12	68	45	57	-10	30	8	0		0	0	0	30.26	36	9.4	9.9	20	36	374	58	3	3	12
13	70	40*	55	-12	38	10	0		0	0	0	30.28	04	7.3	9.5	13	04	640	100	0	0	13
14	72	47	60	-7	48	5	0		0	0	0	30.25	27	5.7	8.6	12	07	480	76	5	3	14
15	78	52	65	-2	53	0	0		0	0	0	30.17	11	6.4	7.3	12	16	575	89	5	5	15
16	80	58	69	2	60	0	4	8	0	T	0	30.08	14	4.3	5.6	12	12	496	71	10	8	16
17	80	60	70	4	65	0	5	1 8	0	0	0	30.03	26	4.5	7.1	14	20	566	88	9	6	17
18	78	60	69	3	63	0	4	2	0	0	0	30.08	27	5.1	5.5	13	09	387	60	9	8	18
19	77	60	69	3	57	0	4		0	T	0	30.13	27	8.5	9.8	14	10	128	20	10	8	19
20	81	65	73	7	61	0	8		0	0	0	30.17	28	10.7	10.8	16	29	160	25	9	8	20
21	83	62	73	8	62	0	8		0	0	0	30.16	29	8.4	8.8	18	10	614	98	4	2	21
22	82	62	72	7	65	0	7	1	0	.10	0	30.09	28	5.7	8.9	13	14	355	56	8	7	22
23	78	65	72	7	68	0	7	1 3	0	1.08	0	30.02	14	4.5	5.2	15	35	114	18	10	8	23
24	77	61	69	4	66	0	4	2	0	.07	0	29.95	11	2.2	4.6	9	36	438	68	8	7	24
25	77	58	68	3	64	0	3	1	0	.18	0	29.85	28	4.7	6.8	17	28	536	84	4	4	25
26	67	43	55	-8	44	10	0		0	0	0	29.88	35	12.1	12.5	22	35	555	87	1	3	26
27	73	41	57	-7	44	8	0		0	0	0	30.13	11	5.6	7.2	14	15	633	100	0	0	27
28	78	53	66	2	57	0	1	8	0	0	0	30.18	14	5.7	6.3	13	14	533	84	4	4	28
29	79	60	70	6	65	0	5	1 8	0	.01	0	30.17	29	7.6	7.9	15	11	313	50	10	8	29
30	83	71	77	13	71	0	12	1	0	.02	0	29.98	15	8.4	9.3	15	10	494	78	8	9	30

SUM	SUM				TOTAL	TOTAL
2327	1735				53	139
AVG.	AVG.	AVG.	DEP.	AVG.	DEP.	DEP.
77.6	57.8	67.7	0.8	58	-19	14
NUMBER OF DAYS					SEASON TO DATE	
MAXIMUM TEMP.		MINIMUM TEMP.			TOTAL	TOTAL
≥ 90°	≤ 32°	≤ 32°	≤ 0°		71	3417
					DEP.	DEP.
0	0	0	0		0	115

NUMBER OF DAYS	
PRECIPITATION ≥ .01 INCH	8
SNOW, ICE PELLETS ≥ 1.0 INCH	0
THUNDERSTORMS	1
HEAVY FOG	3
CLEAR 6 PARTLY CLOUDY 9 CLOUDY 15	

PRECIPITATION TOTAL	SNOW, ICE PELLETS TOTAL	AVG. STATION PRESSURE	WIND RESULTANT DIR.	RESULTANT SPEED	AVERAGE SPEED	FASTEST MILE SPEED	FASTEST MILE DIRECTION
1.89	0	30.05	27	2.5	7.5	23	31
DEP.						DATE:	12
2.10							

GREATEST IN 24 HOURS AND DATES				GREATEST DEPTH ON GROUND OF SNOW, ICE PELLETS OR ICE AND DATE
PRECIPITATION		SNOW, ICE PELLETS		
1.12	22-23	0		0

SUNSHINE TOTAL	%	SKY COVER SUM	SUM
9822	FOR MONTH	191	169
POSSIBLE FOR MONTH		AVG.	AVG.
19384	51	6.4	5.6

- * EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.
- T TRACE AMOUNT
- + ALSO ON AN EARLIER DATE, OR DATES.

HEAVY FOG: - VISIBILITY 1/4 MILE OR LESS.
FIGURES FOR WIND DIRECTIONS ARE TENS OF DEGREES CLOCKWISE FROM TRUE NORTH. 00 = CALM.
DATA IN COLS. 6 AND 12-15 ARE BASED ON 7 OR MORE OBSERVATIONS PER DAY AT 3-HOUR INTERVALS.
FASTEST MILE WIND SPEEDS ARE FASTEST OBSERVED ONE-MINUTE VALUES WHEN DIRECTIONS ARE IN TENS OF DEGREES. THE / WITH THE DIRECTION INDICATES PEAK GUST SPEED.
ANY ERRORS DETECTED WILL BE CORRECTED AND CHANGES IN SUMMARY DATA WILL BE ANNOTATED IN THE ANNUAL SUMMARY

SUMMARY BY HOURS

HOUR (LST)	AVERAGES SKY COVER (TENTHS)	STATION PRESSURE IN.	TEMPERATURE °F AIR °F	WET BULB °F	DEW PT. °F	RELATIVE HUMIDITY %	WIND SPEED M.P.H.	RESULTANT WIND DIRECTION	SPEED M.P.H.
01	4	30.05	62	60	57	85	6.2	08	3.5
04	5	30.04	61	59	56	87	6.2	07	3.5
07	5	30.06	60	58	56	87	6.4	07	3.7
10	6	30.10	70	64	58	71	9.6	09	3.5
13	7	30.05	75	66	58	60	10.3	12	1.4
16	7	30.02	75	65	58	59	9.4	32	1.1
19	6	30.04	67	62	59	75	5.5	04	2.3
22	5	30.06	65	61	58	82	6.1	05	3.2

HOURLY PRECIPITATION (WATER EQUIVALENT IN INCHES)

DATE	A.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	P.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	DATE
1																									1
2																									2
3										T			T	.13	.01	.01	.03	.08	.03		.01	T			3
4													T	T	.15										4
5																									5
6																									6
7					T							T													7
8																									8
9																									9
10												T	T												10
11																									11
12																									12
13																									13
14																									14
15																									15
16											T	T	T												16
17																									17
18																									18
19								T	T			T													19
20																									20
21																									21
22																			.12						22
23												.09	.05	.05	T			.14	.66	.24					23
24																.02						.05	.01	T	24
25	.15	.04																							25
26																									26
27																									27
28																									28
29																		T	T			T	.01		29
30		T		.02																					30

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USCOMM--NOAA--ASHEVILLE 12/16/77 425

DECEMBER 1977
TAMPA, FLORIDA
NAT WEATHER SERVICE MET OBSY
INTERNATIONAL AIRPORT

Local Climatological Data

MONTHLY SUMMARY

DECEMBER 1977 TAMPA, FLORIDA

LATITUDE 27° 58' N LONGITUDE 82° 32' W ELEVATION (GROUND) 19 FT. STANDARD TIME USED: EASTERN WBAN #12842

DATE	TEMPERATURE °F MAXIMUM	MINIMUM	AVERAGE	DEPARTURE FROM NORMAL	AVERAGE DEW POINT	DEGREE DAYS BASE 65° HEATING (SEASON BEGINS WITH JUL)	COOLING (SEASON BEGINS WITH JAN)	WEATHER TYPES ON DATES OF OCCURRENCE 1 FOG 2 HEAVY FOG 3 THUNDERSTORM 4 ICE PELLETS 5 HAIL 6 GLAZE 7 DUSTSTORM 8 SMOKE, HAZE 9 BLOWING SNOW	SNOW, ICE PELLETS OR ICE ON GROUND AT 07AM IN.	PRECIPITATION WATER EQUIVALENT IN.	SNOW, ICE PELLETS IN.	AVG. STATION PRESSURE IN. ELEV. 11 FEET M.S.L.	WIND RESULTANT DIR.	RESULTANT SPEED M.P.H.	AVERAGE SPEED M.P.H.	FASTEST MILE SPEED M.P.H.	FASTEST MILE DIRECTION	SUNSHINE MINUTES	PERCENT OF POSSIBLE	SKY COVER TENTHS SUNRISE TO SUNSET	MIDNIGHT TO MIDNIGHT	DATE
1	2	3	4	5	6	7A	7B	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1	79*	65	72	9	70	0	7	2	0	.25	0	29.95	18	3.8	6.8	22	25	230	37	10	10	1
2	67	58	63	0	61	2	0	1	0	.46	0	30.02	32	6.2	8.5	14	35	103	16	10	10	2
3	73	52	63	0	51	2	0	2	0	0	0	30.07	28	2.8	5.3	10	36	546	87	1	3	3
4	74	49	62	-1	55	3	0	1	0	0	0	30.01	15	3.2	3.7	8	35	466	74	8	7	4
5	78	66	72	9	67	0	7	1	0	.22	0	29.83	18	10.3	10.8	16	19	307	48	8	10	5
6	74	48	61	-2	53	4	0	1 3	0	.08	0	29.89	32	10.5	15.1	23	34	508	81	3	4	6
7	58	35	47	-16	22	18	0		0	0	0	30.18	22	9.3	9.8	16	36	577	92	2	1	7
8	73	38	56	-5	45	9	0		0	0	0	30.18	10	7.8	8.8	14	15	546	97	1	2	8
9	68	62	65	3	61	0	0	1 3	0	.78	0	30.13	12	1.8	7.2	14	01	7	1	10	8	9
10	62	43	53	-8	30	12	0		0	0	0	30.30	03	11.8	12.1	18	05	564	90	7	5	10
11	69	41	55	-7	46	10	0		0	0	0	30.29	05	11.7	12.1	17	05	564	90	2	1	11
12	76	50	63	1	54	2	0	1	0	0	0	30.23	07	8.5	9.2	15	11	525	84	6	3	12
13	75	58	67	5	62	0	2	1	0	0	0	30.14	29	6.6	6.9	10	28	314	50	10	8	13
14	74	69	72*	10	69	0	7	2	0	.04	0	29.96	17	7.9	9.8	14	19	264	42	10	10	14
15	70	67	69	7	66	0	4	1	0	.33	0	29.97	34	4.6	6.6	12	36	135	17	10	10	15
16	73	66	70	8	68	0	5	1	0	.37	0	29.82	22	.8	3.5	7	27	167	27	10	10	16
17	71	66	69	8	68	0	4	2	0	T	0	29.97	20	2.5	4.0	10	17	67	11	10	10	17
18	69	47	58	-3	51	7	0	1 8	0	0	0	29.89	32	7.2	9.9	22	35	508	82	3	3	18
19	68	43	56	-5	45	9	0		0	0	0	30.22	29	1.3	2.6	9	24	627	100	0	0	19
20	71	44	58	-3	51	7	0	1 8	0	0	0	30.01	18	4.6	5.0	10	18	573	92	1	1	20
21	66	47	57	-4	51	8	0	1	0	.28	0	30.00	32	3.1	9.3	20	34	0	0	10	9	21
22	52	35	44	-17	35	21	0		0	0	0	30.30	01	6.8	8.8	15	35	493	79	6	5	22
23	58	31	45	-16	35	20	0		0	0	0	30.37	01	1.6	6.0	10	27	562	90	7	3	23
24	68	41	55	-6	46	10	0	8	0	0	0	30.18	13	3.0	4.8	7	20	474	76	8	8	24
25	68	53	61	0	58	4	0	1	0	.46	0	29.89	21	2.3	6.5	14	36	182	31	10	10	25
26	57	37	47	-14	36	18	0	1	0	0	0	30.04	36	8.4	10.1	18	01	321	52	7	7	26
27	55	30*	43*	-18	26	22	0		0	0	0	30.23	01	5.6	5.8	12	02	579	93	1	1	27
28	60	33	47	-14	30	18	0		0	0	0	30.27	33	4.5	5.8	10	36	579	93	1	0	28
29	68	35	52	-8	38	13	0		0	0	0	30.25	07	7.9	8.1	15	09	557	89	2	3	29
30	69	55	62	2	56	3	0	1	0	.32	0	30.14	12	6.1	6.2	12	13	161	25	10	10	30
31	70	60	65	5	63	0	0	2	0	T	0	30.09	14	3.2	4.5	7	09	54	9	10	9	31

SUM	SUM				TOTAL	TOTAL
2113	1524				222	38
AVG.	AVG.	AVG.	DEP.	AVG.	DEP.	DEP.
68.2	49.2	58.7	-2.9	51	53	-28
					SEASON TO DATE	
NUMBER OF DAYS					TOTAL	TOTAL
MAXIMUM TEMP.		MINIMUM TEMP.			293	3453
≥ 90°	≤ 32°	≤ 32°	≤ 0°		DEP.	DEP.
0	0	2	0		53	87

NUMBER OF DAYS
PRECIPITATION ≥ .01 INCH 11
SNOW, ICE PELLETS ≥ 1.0 INCH 0
THUNDERSTORMS 2
HEAVY FOG 5
CLEAR 11 PARTLY CLOUDY 5 CLOUDY 15

PRECIPITATION TOTAL	SNOW, ICE PELLETS TOTAL	FOR THE MONTH: STATION PRESSURE	RESULTANT DIR.	RESULTANT SPEED	AVERAGE SPEED	FASTEST MILE SPEED	FASTEST MILE DIRECTION	SUNSHINE TOTAL	%	SKY COVER SUM	SUM
3.40	0	30.08	05	2.4	7.5	23	34	11534	FOR	137	182
DEP.						DATE: 06		POSSIBLE MONTH		AVG.	AVG.
1.21								19354	59	4.4	5.8

GREATEST IN 24 HOURS AND DATES PRECIPITATION		SNOW, ICE PELLETS		GREATEST DEPTH ON GROUND OF SNOW, ICE PELLETS OR ICE AND DATE
.73	9	0		0

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.
T TRACE AMOUNT
+ ALSO ON AN EARLIER DATE, OR DATES.
HEAVY FOG: - VISIBILITY 1/4 MILE OR LESS.
FIGURES FOR WIND DIRECTIONS ARE TENS OF DEGREES CLOCKWISE FROM TRUE NORTH. 00 = CALM.
DATA IN COLS. 6 AND 12-15 ARE BASED ON 7 OR MORE OBSERVATIONS PER DAY AT 3-HOUR INTERVALS.
FASTEST MILE WIND SPEEDS ARE FASTEST OBSERVED ONE-MINUTE VALUES WHEN DIRECTIONS ARE IN TENS OF DEGREES. THE / WITH THE DIRECTION INDICATES PEAK GUST SPEED.
ANY ERRORS DETECTED WILL BE CORRECTED AND CHANGES IN SUMMARY DATA WILL BE ANNOTATED IN THE ANNUAL SUMMARY

SUMMARY BY HOURS

HOUR (LOCAL TIME)	AVERAGES SKY COVER (TENTHS)	STATION PRESSURE IN.	TEMPERATURE AIR °F	WET BULB °F	DEW PT. °F	RELATIVE HUMIDITY %	WIND SPEED M.P.H.	RESULTANT WIND DIRECTION	SPEED M.P.H.
01	5	30.08	55	53	51	88	6.6	08	2.8
04	6	30.07	55	52	50	89	6.9	07	2.7
07	6	30.09	53	51	49	87	7.1	04	2.8
10	6	30.13	59	55	51	75	8.1	06	4.4
13	7	30.08	65	58	52	65	10.1	07	1.5
16	6	30.05	66	58	51	62	8.8	34	1.4
19	6	30.08	59	55	51	79	5.8	25	2.2
22	6	30.12	56	54	52	90	5.9	26	2.3

HOURLY PRECIPITATION (WATER EQUIVALENT IN INCHES)

DATE	A.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	P.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	DATE
1														.10	.15	T									1
2						.02	.05	T	.10	.19	.03	T	T	.08	T	.01									2
3																									3
4																									4
5																		T	T	T	.02				5
6	T		.02				.08	T																	6
7																									7
8																									8
9							T			.14	.18	.08	.10	.33	T										9
10																									10
11																									11
12																									12
13																									13
14	T	.03						T	T						.01			T							14
15	T		T				T				T	.01	T	T	T	T	T	.01	T	T	.10	.19	.01	.01	15
16	.19	.07	.09						T		.01	T	T	T	T	T	T			T	.01				16
17	T	T						T	T																17
18																									18
19																									19
20																									20
21					.02	.13	.03				.05	.03	T	T	.01	T	T			.01					21
22																									22
23																									23
24																									24
25															T	.10	.23	.08	.05	T					25
26																									26
27																									27
28																									28
29																									29
30										T	T					T	.08	.14	.10	T					30
31					T		T	T	T		T	T	T		T										31

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Daniel B. Mitchell
DIRECTOR, NATIONAL CLIMATIC CENTER

noaa NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION / ENVIRONMENTAL DATA SERVICE

USCOMM--NOAA--ASHEVILLE 01/18/78 425

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JANUARY 1978
TAMPA, FLORIDA
NAT WEATHER SERVICE MET OBSY
INTERNATIONAL AIRPORT

Local Climatological Data

MONTHLY SUMMARY

JANUARY 1978 TAMPA, FLORIDA

LATITUDE 27° 58' N LONGITUDE 82° 32' W ELEVATION (GROUND) 19 FT. STANDARD TIME USED: EASTERN WBAN #12842

DATE	TEMPERATURE °F MAXIMUM	MINIMUM	AVERAGE	DEPARTURE FROM NORMAL	AVERAGE DEW POINT	DEGREE DAYS BASE 65° HEATING (SEASON BEGINS WITH JULY)	COOLING (SEASON BEGINS WITH JAN.)	WEATHER TYPES ON DATES OF OCCURRENCE 1 FOG 2 HEAVY FOG 3 THUNDERSTORM 4 ICE PELLETS 5 HAIL 6 GLAZE 7 DUSTSTORM 8 SMOKE, HAZE 9 BLOWING SNOW	SNOW, ICE PELLETS OR ICE ON GROUND AT 07AM IN.	PRECIPITATION WATER EQUIVALENT IN.	SNOW, ICE PELLETS IN.	AVG. STATION PRESSURE IN. ELEV. 11 FEET M.S.L.	WIND RESULTANT DIR.	RESULTANT SPEED M.P.H.	AVERAGE SPEED M.P.H.	FASTEST MILE SPEED M.P.H.	DIRECTION	SUNSHINE MINUTES	PERCENT OF POSSIBLE	SKY COVER TENTHS SUNRISE TO SUNSET	MIDNIGHT TO MIDNIGHT	DATE
1	2	3	4	5	6	7A	7B	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1	71	61	66	5	64	0	1	2	0	T	0	30.04	11	1.7	2.7	8	28	228	37	10	10	1
2	64	54	59	-2	56	6	0	1	0	T	0	30.08	01	7.3	7.9	14	01	128	20	10	10	2
3	60	42	51	-9	37	14	0		0	.02	0	30.21	03	7.4	7.6	14	03	497	80	7	6	3
4	70	41	56	-4	43	9	0		0	0	0	30.32	05	9.3	9.6	16	07	564	90	1	1	4
5	76	52	64	4	54	1	0		0	0	0	30.27	07	3.5	6.2	9	11	511	81	8	6	5
6	75	58	67	7	57	0	2		0	0	0	30.13	14	6.6	7.1	16	15	510	81	8	0	6
7	79*	61	70*	10	60	0	5		0	0	0	30.10	15	5.9	6.3	12	16	497	79	8	7	7
8	69	60	65	5	61	0	0	3	0	.63	0	29.81	18	10.4	10.6	26	29	0	0	10	9	8
9	61	35	48	-12	40	17	0	1	0	T	0	30.10	31	13.5	15.2	23	31	564	90	3	3	9
10	51	31	41	-19	23	24	0		0	0	0	30.32	31	8.2	8.9	15	36	558	89	5	5	10
11	56	33	45	-15	19	20	0		0	0	0	30.34	03	7.8	8.1	15	02	513	81	3	3	11
12	70	40	55	-5	47	10	0		0	0	0	30.15	11	6.4	7.9	14	16	375	59	9	7	12
13	67	54	61	1	56	4	0	1 3	0	.63	0	29.84	27	4.3	9.1	21	27	380	60	10	10	13
14	54	46	50	-10	42	15	0		0	.01	0	29.94	33	11.5	11.8	20	33	394	62	7	9	14
15	46	32	39*	-21	32	26	0		0	0	0	30.24	33	10.0	10.5	17	35	379	60	8	7	15
16	66	29*	48	-12	39	17	0	1 8	0	0	0	30.26	11	6.1	7.5	12	15	573	90	8	5	16
17	70	54	62	2	57	3	0	23	0	.36	0	30.03	19	5.2	7.5	17	19	278	44	10	9	17
18	71	50	61	1	55	4	0	2 8	0	0	0	30.06	05	3.2	5.6	15	09	562	88	4	5	18
19	77	60	68	9	64	0	4	1 3	0	1.06	0	29.93	15	10.9	12.1	29	30	19	3	10	10	19
20	60	49	55	-5	51	10	0	8	0	0	0	29.99	30	8.7	11.4	16	29	153	24	10	9	20
21	53	40	47	-13	43	18	0	1 8	0	0	0	30.23	36	9.3	9.5	15	35	419	65	9	8	21
22	61	39	50	-11	43	15	0	1 8	0	0	0	30.29	32	2.7	5.8	10	26	519	81	10	9	22
23	73	50	62	1	55	3	0	1 8	0	0	0	30.26	08	7.2	7.8	12	08	384	60	9	8	23
24	78	56	67	6	58	0	2	1 8	0	0	0	30.09	11	9.5	10.1	14	14	451	70	9	10	24
25	76	61	69	8	64	0	4	1 8	0	.11	0	29.79	19	10.8	12.9	21	28	553	86	4	7	25
26	64	48	56	-5	45	9	0		0	0	0	30.03	29	14.5	15.1	21	30	584	90	2	3	26
27	55	39	47	-14	28	18	0		0	0	0	30.24	36	7.6	8.2	15	02	533	83	10	7	27
28	53	35	44	-17	31	21	0		0	0	0	30.26	35	7.9	8.2	18	33	583	90	5	9	28
29	54	34	44	-17	28	21	0		0	0	0	30.30	33	7.7	8.9	16	35	618	95	0	0	29
30	56	31	44	-17	23	21	0		0	0	0	30.31	02	6.6	6.9	14	36	605	93	1	3	30
31	61	41	51	-10	33	14	0	1 8	0	T	0	30.25	02	2.9	4.9	10	03	210	32	9	9	31
	SUM	SUM				TOTAL	TOTAL			TOTAL	TOTAL	FOR THE MONTH:						TOTAL	%	SUM	SUM	
	1997	1413				320	19	NUMBER OF DAYS		2.82	0	30.14	01	2.3	8.8	29	30	13143	FOR	215	209	
	AVG.	AVG.	AVG.	DEP.	AVG.	DEP.	DEP.	PRECIPITATION		DEP.						DATE: 19		POSSIBLE	MONTH	AVG.	AVG.	
	64.4	45.6	55.0	-5.4	45	117	-42	≥ .01 INCH	7	0.49								19713	67	6.9	6.7	

NUMBER OF DAYS				SEASON TO DATE	
MAXIMUM TEMP.		MINIMUM TEMP.		TOTAL	TOTAL
≥ 90°	≤ 32°	≤ 32°	≤ 0°	613	18
				DEP.	DEP.
0	0	4	0	170	-42

		GREATEST IN 24 HOURS AND DATES			GREATEST DEPTH ON GROUND OF SNOW, ICE PELLETS OR ICE AND DATE	
SNOW, ICE PELLETS ≥ 1.0 INCH	0	PRECIPITATION		SNOW, ICE PELLETS		
THUNDERSTORMS	4					
HEAVY FOG	3	1.06	19	0	0	

CLEAR 6 PARTLY CLOUDY 7 CLOUDY 18

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.
T TRACE AMOUNT
- ALSO ON AN EARLIER DATE, OR DATES.
HEAVY FOG: - VISIBILITY 1/4 MILE OR LESS.
FIGURES FOR WIND DIRECTIONS ARE TENS OF DEGREES CLOCKWISE FROM TRUE NORTH. 00 = CALM.
DATA IN COLS. 6 AND 12-15 ARE BASED ON 7 OR MORE OBSERVATIONS PER DAY AT 3-HOUR INTERVALS.
FASTEST MILE WIND SPEEDS ARE FASTEST OBSERVED ONE-MINUTE VALUES WHEN DIRECTIONS ARE IN TENS OF DEGREES. THE / WITH THE DIRECTION INDICATES PEAK GUST SPEED.
ANY ERRORS DETECTED WILL BE CORRECTED AND CHANGES IN SUMMARY DATA WILL BE ANNOTATED IN THE ANNUAL SUMMARY

SUMMARY BY HOURS

HOUR LOCAL TIME	AVERAGES SKY COVER TENTHS	STATION PRESSURE IN.	TEMPERATURE AIR °F	WET BULB °F	DEW PT. °F	RELATIVE HUMIDITY %	WIND SPEED M.P.H.	RESULTANT WIND DIRECTION	SPEED M.P.H.
01	7	30.13	51	49	46	84	7.6	01	1.5
04	7	30.12	50	48	45	84	8.0	02	3.1
07	7	30.14	49	47	44	84	8.4	03	3.2
10	7	30.19	55	50	45	72	10.0	04	4.7
13	7	30.13	61	54	46	60	11.1	33	1.8
16	7	30.10	62	54	45	59	9.9	33	2.1
19	7	30.12	55	51	46	74	6.8	36	2.5
22	6	30.14	52	49	46	81	6.7	03	1.5

HOURLY PRECIPITATION (WATER EQUIVALENT IN INCHES)

DATE	A.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	P.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	DATE
1															T	T									1
2		T	T																						2
3	T	T	T	T	.01	T	.01																		3
4																									4
5																									5
6																									6
7																									7
8											T	T	T	.03	.18	.04	.29	.06	T	T	T	T		.04	8
9	T																								9
10																									10
11																									11
12																									12
13								.04	.54	.05								T	T	T	T				13
14																		T	T		.01				14
15																									15
16																									16
17									T	.04	.09	.23	T												17
18																									18
19									T	T					.33	.02	.19	.05		.10	.34	T	.03		19
20																									20
21																									21
22																									22
23																									23
24																									24
25																					.08	.03		T	25
26																									26
27																									27
28																									28
29																									29
30																									30
31																	T	T						T	31

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Daniel B. Mitchell
DIRECTOR, NATIONAL CLIMATIC CENTER

USCOMM--NOAA--ASHEVILLE 01/23/78 425

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FEBRUARY 1978
TAMPA, FLORIDA
NAT WEATHER SERVICE MET OBSY
INTERNATIONAL AIRPORT

Local Climatological Data

MONTHLY SUMMARY

LATITUDE 27° 58' N LONGITUDE 82° 32' W ELEVATION (GROUND) 19 FT. STANDARD TIME USED: EASTERN WBAN #12842

Date	Temperature °F: Maximum	Minimum	Average	Departure from normal	Average dew point	Degree days base 65°: Heating (season begins with July)	Cooling (season begins with Jan.)	Weather types on dates of occurrence	Snow, ice pellets or ice on ground at 07 AM in.	Precipitation: Water equivalent in.	Snow, ice pellets in.	Avg. station pressure in. elev. 11 feet m.s.l.	Wind: Resultant dir.	Resultant speed m.p.h.	Average speed m.p.h.	Fastest mile: Speed m.p.h.	Direction	Sunshine: Minutes	Percent of possible	Sky cover tenths: Sunrise to sunset	Midnight to midnight	Date
1	2	3	4	5	6	7A	7B	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1	58	45	52	-8	48	13	0	1 8	0	T	0	30.21	28	9.3	9.5	12	27	14	2	10	10	1
2	68	56	62	1	58	3	0	2 8	0	.28	0	30.13	15	3.2	5.0	13	19	15	2	10	9	2
3	65	52	59	-2	55	6	0	2 8	0	T	0	30.14	02	7.3	8.3	12	28	82	13	10	10	3
4	61	44	53	-8	45	12	0	1 8	0	0	0	30.21	04	12.6	12.8	17	03	147	22	10	10	4
5	66	40	53	-8	38	12	0		0	0	0	30.17	01	8.8	8.8	15	33	431	66	8	6	5
6	51	34	43	-18	34	22	0		0	0	0	30.08	34	8.1	8.3	13	34	525	82	2	3	6
7	54	31	43	-18	24	22	0		0	0	0	30.10	33	5.1	7.1	13	35	333	52	8	7	7
8	61	40	51	-10	45	14	0	1	0	.84	0	29.94	07	8.1	8.4	14	07	2	0	10	10	8
9	55	46	51	-10	50	14	0	1	0	.43	0	29.82	36	8.8	8.8	16	02	1	0	10	10	9
10	58	40	49	-12	40	16	0	1	0	T	0	29.97	35	7.8	8.2	16	35	525	78	2	4	10
11	63	37	50	-11	37	15	0	1 8	0	0	0	30.05	28	2.6	3.7	13	27	687	100	0	0	11
12	69	37	53	-8	40	12	0	8	0	0	0	30.05	20	1.4	3.5	10	27	680	100	0	0	12
13	70	48	60	-2	55	5	0	1 8	0	0	0	29.93	18	7.3	8.5	16	18	425	64	7	4	13
14	65	43	54	-8	48	11	0	1	0	0	0	29.99	31	6.4	7.1	15	32	522	83	10	0	14
15	65	40	53	-8	44	12	0	1 3 8	0	.14	0	30.08	35	3.1	3.3	12	24	268	40	10	8	15
16	65	53	59	-3	56	6	0	1	0	.89	0	30.02	35	3.3	7.8	18	14	0	0	10	10	16
17	65	57	61	-1	60	4	0	1 8	0	.16	0	30.02	08	4.0	4.5	9	14	0	0	10	10	17
18	70	59	65*	3	62	0	0	1 3 8	0	1.88	0	29.84	08	1.2	8.8	21	30	251	37	10	10	18
19	59	48	54	-8	53	11	0	1 8	0	.05	0	29.82	32	6.8	7.2	12	34	0	0	10	10	19
20	52	48	50	-12	48	15	0	1	0	.37	0	30.18	35	1.3	4.5	7	12	0	0	10	10	20
21	65	46	56	-6	47	9	0	1	0	.08	0	30.08	28	7.1	8.3	21	33	417	61	8	7	21
22	47	35	41*	-21	30	24	0		0	0	0	30.25	33	12.8	13.1	23	34	550	82	4	3	22
23	61	31*	46	-17	39	19	0		0	0	0	30.18	25	7.3	7.8	18	27	461	67	7	5	23
24	59	40	50	-13	38	15	0		0	0	0	30.15	31	9.5	7.5	13	27	530	78	7	5	24
25	66	36	51	-12	43	14	0	8	0	0	0	30.14	25	3.7	3.8	14	26	532	77	1	1	25
26	70	44	57	-6	51	8	0		0	0	0	30.14	27	4.2	4.8	14	27	495	66	2	1	26
27	70	47	59	-4	53	6	0	2	0	0	0	30.12	28	4.0	4.8	13	27	479	68	4	5	27
28	72*	51	62	-1	56	3	0	1 8	0	.01	0	29.99	17	8.3	6.8	14	19	46	7	10	8	28

Sum	Sum				Total	Total		
1750	1232				323	0	NUMBER OF DAYS	
Avg.	Avg.	Avg.	Dep.	Avg.	Dep.	Dep.	PRECIPITATION	
62.5	43.9	53.2	-8.6	46	147	-87	≥ .01 INCH	11
					SEASON TO DATE		SNOW, ICE PELLETS	
NUMBER OF DAYS					Total	Total	≥ 1.0 INCH	0
MAXIMUM TEMP.		MINIMUM TEMP.			936	19	THUNDERSTORMS	2
≥ 90°	≤ 32°	≤ 32°	≤ 0°		Dep.	Dep.	HEAVY FOG	3
0	0	2	0		317	-129	CLEAR 7 PARTLY CLOUDY 5 CLOUDY 16	

Precipitation Total	Snow, ice pellets Total	FOR THE MONTH:						Sunshine Total	%	Sky cover Sum	Sum
5.17	0	30.05	35	2.5	7.3	23	34	8428	FOR	182	175
DEP.						DATE: 22		POSSIBLE MONTH		Avg.	Avg.
2.31								[illegible]	49	6.5	6.3

GREATEST IN 24 HOURS AND DATES: PRECIPITATION		SNOW, ICE PELLETS	GREATEST DEPTH ON GROUND OF SNOW, ICE PELLETS OR ICE AND DATE
2.02	17-18	0	0

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.
T TRACE AMOUNT
+ ALSO ON AN EARLIER DATE, OR DATES.
HEAVY FOG: - VISIBILITY 1/4 MILE OR LESS.
FIGURES FOR WIND DIRECTIONS ARE TENS OF DEGREES CLOCKWISE FROM TRUE NORTH. 00 = CALM.
DATA IN COLS. 6 AND 12-15 ARE BASED ON 7 OR MORE OBSERVATIONS PER DAY AT 3-HOUR INTERVALS.
FASTEST MILE WIND SPEEDS ARE FASTEST OBSERVED ONE-MINUTE VALUES WHEN DIRECTIONS ARE IN TENS OF DEGREES. THE / WITH THE DIRECTION INDICATES PEAK GUST SPEED.
ANY ERRORS DETECTED WILL BE CORRECTED AND CHANGES IN SUMMARY DATA WILL BE ANNOTATED IN THE ANNUAL SUMMARY

SUMMARY BY HOURS

Hour (local time)	Averages: Sky cover tenths	Station pressure in.	Temperature: Air °F	Wet bulb °F	Dew pt. °F	Relative humidity %	Wind speed m.p.h.	Resultant wind: Direction	Speed m.p.h.
01	5	30.07	48	47	46	92	4.8	00	3.1
04	6	30.05	47	46	45	93	5.1	34	2.8
07	7	30.08	47	45	45	93	6.3	33	4.5
10	7	30.11	54	50	46	77	8.5	33	3.2
13	7	30.07	60	53	47	65	10.1	31	1.8
16	7	30.03	61	54	48	65	10.7	29	5.3
19	7	30.05	54	50	47	78	7.1	33	3.5
22	5	30.07	51	49	47	88	5.8	30	1.4

HOURLY PRECIPITATION (WATER EQUIVALENT IN INCHES)

Date	A.M. hour ending at 1	2	3	4	5	6	7	8	9	10	11	12	P.M. hour ending at 1	2	3	4	5	6	7	8	9	10	11	12	Date
1	T	T	T																						1
2															.05	.08	.05	.03	.02	.02	.01	T	T		2
3		T	T																	T	T	T	T		3
4																									4
5																									5
6																									6
7																									7
8														T	.02	.08	.10	.13	.07	.03	.28	.22	.04	.01	8
9	.10	.09	.07	.01			T	T									T	T	T	T	.02	.03	.11	T	9
10	T																								10
11																									11
12																									12
13																									13
14																									14
15															T	T	T				.12	.02			15
16							T	.08	.13	.03	.11	.40	.08	.05			T								16
17											T	T								T	.01	.01	.04	.12	17
18	.11	.19	.03	.09	.23	.31	.30	.57	.03								T								18
19																			T	T	T	.01	.02	.02	19
20	.01	.03	.03	.01	T	.01	.02	.01	T	T	.01	T	T	T	.03	.08	.09	.02	.01	T	.01	T	.01	T	20
21	T	T														T	.28								21
22																									22
23																									23
24																									24
25																									25
26																									26
27																									27
28																				.01	T				28

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noaa NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION / ENVIRONMENTAL DATA SERVICE

Daniel B. Mitchell
DIRECTOR, NATIONAL CLIMATIC CENTER

USCOMM--NOAA--ASHEVILLE 03/23/78 425

MARCH 1978
TAMPA, FLORIDA
NAT WEATHER SERVICE MET OBSY
INTERNATIONAL AIRPORT

Local Climatological Data

MONTHLY SUMMARY

LATITUDE 27° 58 'N LONGITUDE 82° 32 'W ELEVATION (GROUND) 19 FT. STANDARD TIME USED: EASTERN WBAN #12842

DATE	TEMPERATURE °F: MAXIMUM	MINIMUM	AVERAGE	DEPARTURE FROM NORMAL	AVERAGE DEW POINT	DEGREE DAYS BASE 65°: HEATING (SEASON BEGINS WITH JULY)	COOLING (SEASON BEGINS WITH JAN.)	WEATHER TYPES ON DATES OF OCCURRENCE	SNOW, ICE PELLETS OR ICE ON GROUND AT 07AM IN.	PRECIPITATION: WATER EQUIVALENT IN.	SNOW, ICE PELLETS IN.	AVG. STATION PRESSURE IN. ELEV. 11 FEET M.S.L.	WIND: RESULTANT DIR.	RESULTANT SPEED M.P.H.	AVERAGE SPEED M.P.H.	FASTEST MILE: SPEED M.P.H.	FASTEST MILE: DIRECTION	SUNSHINE: MINUTES	PERCENT OF POSSIBLE	SKY COVER TENTHS: SUNRISE TO SUNSET	MIDNIGHT TO MIDNIGHT	DATE
1	2	3	4	5	6	7A	7B	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1	79	58	67	4	62	0	2	2	0	T	0	29.98	29	6.4	8.8	15	28	288	42	9	7	1
2	78	54	65	1	58	0	0	1 8	0	0	0	29.80	13	9.4	7.8	13	15	38	5	8	8	2
3	70	60	65	1	62	0	0	1 3 8	0	.87	0	29.70	17	5.5	8.5	17	35	0	0	10	10	3
4	60	41	51	-13	48	14	0	1 8	0	T	0	29.81	33	8.3	9.6	17	33	1	0	10	8	4
5	62	37*	50*	-14	34	15	0	8	0	0	0	30.21	36	8.3	7.5	13	01	702	100	0	0	5
6	71	38	55	-8	43	10	0	1 8	0	0	0	30.22	12	1.5	4.3	8	18	703	100	0	0	6
7	81	53	67	3	55	0	2	1 8	0	0	0	30.12	15	5.1	6.6	15	16	564	80	4	3	7
8	74	61	68	3	60	0	3	1 3	0	.88	0	30.22	12	8.8	9.2	21	36	188	24	10	8	8
9	66	56	61	-4	58	4	0	1 3	0	.54	0	29.86	23	2.3	8.2	21	28	219	31	10	9	9
10	60	54	57	-8	48	8	0	1 8	0	.05	0	29.92	23	14.6	15.3	23	28	427	60	7	8	10
11	68	44	56	-9	47	9	0	1 8	0	0	0	30.28	27	4.7	5.2	13	27	696	92	1	1	11
12	74	47	61	-4	48	4	0	1 8	0	0	0	30.29	18	4.5	4.8	14	17	632	89	7	5	12
13	81	53	67	2	55	0	2	1 8	0	0	0	30.26	13	5.5	5.5	13	13	642	90	5	3	13
14	80	67	74	8	66	0	9	1 8	0	0	0	29.98	17	8.3	8.6	15	20	642	88	5	3	14
15	81	68	75*	8	70	0	10	2	0	T	0	30.01	18	7.3	7.1	13	18	556	77	10	8	15
16	81	61	71	5	65	0	6	2	0	T	0	30.34	25	5.3	10.2	23	34	378	53	10	10	16
17	62	47	55	-11	38	10	0		0	0	0	30.29	35	11.8	12.4	23	34	575	80	8	8	17
18	68	46	57	-8	33	8	0		0	0	0	30.43	02	8.9	7.5	15	01	667	92	8	6	18
19	73	45	58	-7	43	6	0		0	0	0	30.40	37	5.2	7.1	12	36	610	84	10	8	19
20	80	52	66	-1	52	0	1		0	0	0	30.27	09	4.8	5.3	12	15	665	91	5	7	20
21	81	62	72	5	58	0	7		0	0	0	30.11	17	2.4	7.8	13	25	634	87	8	8	21
22	80	56	68	1	58	0	3	2	0	0	0	30.04	34	5.4	6.3	15	36	607	83	5	6	22
23	80	59	70	3	60	0	5	2 8	0	0	0	30.01	31	3.8	6.3	12	30	635	87	2	4	23
24	84	60	72	5	63	0	7	1	0	0	0	29.98	18	1.7	6.6	16	27	651	89	3	4	24
25	83	65	74	8	64	0	9	1	0	0	0	29.88	22	3.8	5.2	14	24	630	86	6	8	25
26	81	61	71	3	63	0	6	1	0	0	0	29.83	27	5.3	7.6	18	30	603	83	8	6	26
27	65	52	58	-8	48	7	0		0	0	0	29.99	32	13.3	10.8	17	31	618	84	8	8	27
28	72	47	60	-6	46	5	0		0	0	0	30.08	32	4.5	5.5	18	27	670	91	1	3	28
29	78	51	65	-3	48	0	0	8	0	0	0	30.08	35	5.8	7.1	15	34	672	91	1	1	29
30	82	54	68	-1	52	0	3	8	0	0	0	30.12	33	4.2	6.5	15	27	677	91	2	1	30
31	84*	53	69	0	52	0	4	1	0	0	0	30.14	12	5.3	6.3	12	12	679	91	4	2	31

Weather types: 1 FOG; 2 HEAVY FOG; 3 THUNDERSTORM; 4 ICE PELLETS; 5 HAIL; 6 GLAZE; 7 DUSTSTORM; 8 SMOKE, HAZE; 9 BLOWING SNOW

SUM	SUM				TOTAL	TOTAL		TOTAL	TOTAL	FOR THE MONTH:						TOTAL	%	SUM	SUM
2315	1662				93	78	NUMBER OF DAYS	2.44	0	30.05	21	1.2	7.7	23	34	16219	FOR	192	171
AVG.	AVG.	AVG.	DEP.	AVG.	DEP.	DEP.	PRECIPITATION	DEP.						DATE:	17	POSSIBLE	MONTH	AVG.	AVG.
74.7	53.6	64.2	-1.8	54	8	-42	≥ .01 INCH 4	-1.45								22326	73	6.2	5.5

NUMBER OF DAYS				SEASON TO DATE			
				TOTAL	TOTAL	SNOW, ICE PELLETS ≥ 1.0 INCH	0
MAXIMUM TEMP.		MINIMUM TEMP.		1035	97	THUNDERSTORMS	3
≥ 90°	≤ 32°	≤ 32°	≤ 0°	DEP.	DEP.	HEAVY FOG	5
0	0	0	0	328	-171	CLEAR 8 PARTLY CLOUDY 11 CLOUDY 12	

GREATEST IN 24 HOURS AND DATES				GREATEST DEPTH ON GROUND OF SNOW, ICE PELLETS OR ICE AND DATE
PRECIPITATION		SNOW, ICE PELLETS		
1.52	8- 9	0		0

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.
T TRACE AMOUNT
+ ALSO ON AN EARLIER DATE, OR DATES.
HEAVY FOG: - VISIBILITY 1/4 MILE OR LESS.
FIGURES FOR WIND DIRECTIONS ARE TENS OF DEGREES CLOCKWISE FROM TRUE NORTH. 00 - CALM.
DATA IN COLS. 6 AND 12-15 ARE BASED ON 7 OR MORE OBSERVATIONS PER DAY AT 3-HOUR INTERVALS.
FASTEST MILE WIND SPEEDS ARE FASTEST OBSERVED ONE-MINUTE VALUES WHEN DIRECTIONS ARE IN TENS OF DEGREES. THE / WITH THE DIRECTION INDICATES PEAK GUST SPEED.
ANY ERRORS DETECTED WILL BE CORRECTED AND CHANGES IN SUMMARY DATA WILL BE ANNOTATED IN THE ANNUAL SUMMARY

SUMMARY BY HOURS

HOUR (LOCAL TIME)	AVERAGES: SKY COVER (TENTHS)	STATION PRESSURE IN.	TEMPERATURE: AIR °F	WET BULB °F	DEW PT. °F	RELATIVE HUMIDITY %	WIND SPEED M.P.H.	RESULTANT WIND: DIRECTION	SPEED M.P.H.
01	6	30.07	59	56	54	83	5.3	01	.9
04	5	30.04	57	55	53	87	5.5	13	1.2
07	6	30.07	56	54	53	89	5.0	12	.8
10	6	30.11	66	62	54	66	8.8	07	2.1
13	6	30.07	72	62	54	56	10.8	23	1.6
16	6	30.03	72	61	53	55	11.0	28	5.0
19	6	30.05	65	58	53	68	7.8	30	4.1
22	4	30.05	61	57	53	78	5.4	35	2.3

HOURLY PRECIPITATION (WATER EQUIVALENT IN INCHES)

DATE	A.M. HOUR ENDING AT: 1	2	3	4	5	6	7	8	9	10	11	12	P.M. HOUR ENDING AT: 1	2	3	4	5	6	7	8	9	10	11	12	DATE
1								T																	1
2																									2
3									.08	.03	.10	.50	.10	.06	T				T		T	T	T		3
4												T	T	T											4
5																									5
6																									6
7																									7
8														T	T	T	T		T	.12	.24	.20	.22	.10	8
9	.05	.11	.04	.01							.07	.07	.01	.18	T										9
10	.02	T	.03	T	T																				10
11																									11
12																									12
13																									13
14																									14
15											T														15
16							T	T	T						T	T		T	T						16
17																									17
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29																									29
30																									30
31																									31

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Daniel B. Mitchell
DIRECTOR, NATIONAL CLIMATIC CENTER

USCOMM--NOAA--ASHEVILLE 04/21/78 425

APRIL 1978
TAMPA, FLORIDA
NAT WEATHER SERVICE MET OBSY
INTERNATIONAL AIRPORT

Local Climatological Data

MONTHLY SUMMARY

LATITUDE 27° 58′ N LONGITUDE 82° 32′ W ELEVATION (GROUND) 19 FT. STANDARD TIME USED: EASTERN WBAN #12842

Date	Temperature °F: Maximum	Minimum	Average	Departure from normal	Average dew point	Degree days base 65°: Heating (season begins with July)	Cooling (season begins with Jan.)	Weather types on dates of occurrence	Snow, ice pellets or ice on ground at 07AM in.	Precipitation: Water equivalent in.	Snow, ice pellets in.	Avg. station pressure in. Elev. 11 feet m.s.l.	Wind: Resultant dir.	Resultant speed m.p.h.	Average speed m.p.h.	Fastest mile: Speed m.p.h.	Direction	Sunshine: Total minutes	Percent of possible	Sky cover tenths: Sunrise to sunset	Midnight to midnight	Date
1	2	3	4	5	6	7A	7B	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1	83	52	68	-1	56	0	3		0	0	0	30.14	09	1.4	5.5	12	33	687	83	2	1	1
2	81	54	68	-1	58	0	3	8	0	0	0	30.17	26	2.5	5.3	15	27	736	94	0	0	2
3	88	54	71	1	58	0	6	1 8	0	0	0	30.26	07	3.7	5.3	10	26	868	93	0	0	3
4	85	56	71	1	61	0	6	1 8	0	0	0	30.29	14	1.2	7.1	14	33	662	88	5	4	4
5	84	63	74	4	63	0	9	1 8	0	0	0	30.19	30	2.3	5.5	13	28	640	95	3	2	5
6	86	63	75	5	63	0	10	1 8	0	0	0	30.16	27	3.0	5.5	15	28	632	84	7	5	6
7	85	65	75	5	62	0	10	1 8	0	0	0	30.15	29	3.2	3.6	14	27	616	82	9	5	7
8	87	58	73	2	60	0	8	1 8	0	0	0	30.08	28	3.4	4.6	13	28	662	96	2	1	8
9	87	61	74	3	60	0	9	1 8	0	0	0	30.05	32	2.0	5.0	12	28	685	92	6	3	9
10	85	60	73	2	60	0	8	8	0	0	0	29.99	17	4.2	5.3	13	15	712	93	7	5	10
11	85	69	77	6	65	0	12		0	0	0	29.98	18	6.6	6.5	15	20	714	91	5	3	11
12	86	69	78	7	69	0	13		0	0	0	29.96	18	6.7	7.1	12	18	688	90	6	5	12
13	86	74	80*	8	72	0	15	1 3	0	.81	0	29.93	18	8.6	11.4	20	20	485	51	7	6	13
14	84	67	76	4	66	0	11	1	0	0	0	30.02	04	7.7	8.8	14	04	564	73	7	5	14
15	85	66	76	4	63	0	11	1	0	0	0	30.04	06	8.4	8.5	13	10	602	78	9	6	15
16	88*	61	75	3	58	0	10	8	0	0	0	30.31	06	6.7	7.2	14	10	726	91	1	1	16
17	87	66	77	5	62	0	12	8	0	0	0	30.22	14	3.2	7.5	13	13	728	92	4	4	17
18	85	71	78	5	69	0	13		0	0	0	29.97	17	8.0	10.1	18	20	681	88	4	5	18
19	80	71	76	3	70	0	11	1 3	0	.09	0	29.86	22	7.5	10.8	16	32	444	57	9	8	19
20	78	58	68	-4	57	0	4		0	0	0	29.86	32	7.0	9.1	14	28	711	92	1	3	20
21	78	57	68	-5	54	0	3		0	0	0	29.90	31	4.4	7.8	15	27	689	90	1	3	21
22	84	55	70	-3	52	0	5		0	0	0	30.01	05	5.4	6.3	14	08	780	100	0	3	22
23	83	63	73	0	60	0	8	8	0	T	0	30.01	11	10.8	11.4	17	10	560	75	9	7	23
24	85	68	77	3	60	0	12		0	T	0	29.92	10	10.6	11.1	16	11	660	95	4	4	24
25	86	62	74	0	63	0	9	8	0	0	0	29.95	31	4.8	6.3	16	34	732	93	6	4	25
26	72	63	68	-6	55	0	3		0	.04	0	29.78	30	12.4	14.1	23	29	667	94	5	5	26
27	71	55	63	-11	48	2	0		0	0	0	29.82	34	12.2	12.7	21	33	574	73	4	4	27
28	77	48*	63*	-11	50	2	0	8	0	0	0	30.05	26	1.9	6.2	13	29	749	95	2	1	28
29	78	53	66	-8	53	0	1	1	0	0	0	30.03	19	5.4	5.8	14	24	745	94	5	3	29
30	82	62	72	-3	60	0	7	1	0	0	0	29.94	21	4.8	6.3	13	23	733	92	8	7	30

Weather types: 1 FOG; 2 HEAVY FOG; 3 THUNDERSTORM; 4 ICE PELLETS; 5 HAIL; 6 GLAZE; 7 DUSTSTORM; 8 SMOKE, HAZE; 9 BLOWING SNOW

SUM	SUM				TOTAL	TOTAL	NUMBER OF DAYS		
2492	1845				4	232	PRECIPITATION ≥ .01 INCH	3	
AVG.	AVG.	AVG.	DEP.	AVG.	DEP.	DEP.	SNOW, ICE PELLETS ≥ 1.0 INCH	0	
83.1	61.5	72.3	0.3	60	-5	13	THUNDERSTORMS	2	
					SEASON TO DATE		HEAVY FOG	0	
NUMBER OF DAYS					TOTAL	TOTAL	CLEAR 10	PARTLY CLOUDY 14	CLOUDY 6
MAXIMUM TEMP.		MINIMUM TEMP.			1039	329			
≥ 90°	≤ 32°	≤ 32°	≤ 0°		DEP.	DEP.			
0	0	0	0		321	-159			

TOTAL	TOTAL	FOR THE MONTH:						TOTAL	%	S.R.-S.S.	M.-M.
.94	0	30.02	17	.5	7.7	23	29	20622	86	137	112
DEP.						DATE:	26	POSSIBLE MONTH		AVG.	AVG.
-1.19								23[illegible]		4.6	3.7

GREATEST IN 24 HOURS AND DATES: PRECIPITATION		SNOW, ICE PELLETS		GREATEST DEPTH ON GROUND OF SNOW, ICE PELLETS OR ICE AND DATE
.81	13	0		0

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.
T TRACE AMOUNT
+ ALSO ON AN EARLIER DATE, OR DATES.
HEAVY FOG: - VISIBILITY 1/4 MILE OR LESS.
FIGURES FOR WIND DIRECTIONS ARE TENS OF DEGREES CLOCKWISE FROM TRUE NORTH. 00 = CALM.
DATA IN COLS. 6 AND 12-15 ARE BASED ON 7 OR MORE OBSERVATIONS PER DAY AT 3-HOUR INTERVALS.
FASTEST MILE WIND SPEEDS ARE FASTEST OBSERVED ONE-MINUTE VALUES WHEN DIRECTIONS ARE IN TENS OF DEGREES. THE / WITH THE DIRECTION INDICATES PEAK GUST SPEED.
ANY ERRORS DETECTED WILL BE CORRECTED AND CHANGES IN SUMMARY DATA WILL BE ANNOTATED IN THE ANNUAL SUMMARY.

SUMMARY BY HOURS

Hour (L.S.T.)	Averages: Sky cover (tenths)	Station pressure in.	Temperature: Air °F	Wet bulb °F	Dew pt. °F	Relative humidity %	Wind speed m.p.h.	Resultant wind: Direction	Speed m.p.h.
01	2	30.02	67	63	61	81	6.0	10	2.0
04	3	30.00	64	62	61	97	4.6	10	2.1
07	5	30.04	64	62	60	88	4.5	10	2.3
10	4	30.06	75	67	61	62	9.4	13	3.5
13	5	30.03	81	68	62	48	10.8	22	3.2
16	5	29.99	82	68	59	48	11.8	27	5.5
19	4	29.99	75	65	59	62	9.7	31	2.7
22	3	30.02	69	64	61	75	9.0	28	1.2

HOURLY PRECIPITATION (WATER EQUIVALENT IN INCHES)

Date	A.M. hour ending at 1	2	3	4	5	6	7	8	9	10	11	12	P.M. hour ending at 1	2	3	4	5	6	7	8	9	10	11	12	Date
1																									1
2																									2
3																									3
4																									4
5																									5
6																									6
7																									7
8																									8
9																									9
10																									10
11																									11
12																									12
13																	.29	.52							13
14																									14
15																									15
16																									16
17																									17
18																									18
19													.01	.01	.02	.01					.04	T			19
20																									20
21																									21
22																									22
23																								T	23
24	T																								24
25																									25
26				.03	.01	T																	T		26
27																									27
28																									28
29																									29
30																									30

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noaa NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION / ENVIRONMENTAL DATA SERVICE

Daniel B. Mitchell
DIRECTOR, NATIONAL CLIMATIC CENTER

USCOMM--NOAA--ASHEVILLE 05/23/78 425

MAY 1978
TAMPA, FLORIDA
NAT WEATHER SERVICE MET OBSY
INTERNATIONAL AIRPORT

Local Climatological Data

MONTHLY SUMMARY

MAY 1978 TAMPA, FLORIDA

LATITUDE 27° 58' N LONGITUDE 82° 32' W ELEVATION (GROUND): 19 FT. STANDARD TIME USED: EASTERN WBAN #12842

	TEMPERATURE °F					DEGREE DAYS BASE 65°		WEATHER TYPES ON DATES OF OCCURRENCE	SNOW, ICE PELLETS OR ICE ON GROUND AT 07AM	PRECIPITATION		AVG. STATION PRESSURE	WIND			FASTEST MILE		SUNSHINE		SKY COVER TENTHS		
DATE	MAXIMUM	MINIMUM	AVERAGE	DEPARTURE FROM NORMAL	AVERAGE DEW POINT	HEATING (SEASON BEGINS WITH JUL. 1)	COOLING (SEASON BEGINS WITH JAN. 1)	1 FOG 2 HEAVY FOG 3 THUNDERSTORM 4 ICE PELLETS 5 HAIL 6 GLAZE 7 DUSTSTORM 8 SMOKE, HAZE 9 BLOWING SNOW	IN.	WATER EQUIVALENT IN.	SNOW, ICE PELLETS IN.	IN. ELEV. 11 FEET M.S.L.	RESULTANT DIR.	RESULTANT SPEED M.P.H.	AVERAGE SPEED M.P.H.	SPEED M.P.H.	DIRECTION	MINUTES	PERCENT OF POSSIBLE	SUNRISE TO SUNSET	MIDNIGHT TO MIDNIGHT	DATE
1	2	3	4	5	6	7A	7B	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1	84	67	76	1	60	0	11	1 8	0	0	0	29.82	19	6.5	8.2	21	18	518	85	8	6	1
2	87	70	79	4	71	0	14	2 8	0	0	0	29.84	26	3.5	4.3	12	27	644	81	3	3	2
3	90	68	79	4	70	0	14	1 8	0	0	0	29.79	17	7.8	8.2	17	18	670	84	7	7	3
4	82	74	78	3	72	0	13	1 3	0	1.40	0	29.71	18	10.8	11.4	29	16	183	23	10	10	4
5	86	63*	75	0	66	0	10		0	0	0	29.81	27	3.5	9.0	12	30	723	90	3	4	5
6	86	71	79	3	72	0	14	1 8	0	.23	0	30.07	09	5.5	8.8	14	08	489	58	10	10	6
7	90	71	81	5	72	0	16	1	0	0	0	30.05	14	4.8	7.0	15	13	607	75	8	7	7
8	88	73	81	5	73	0	16	1	0	0	0	30.01	19	5.6	6.8	13	21	750	93	8	8	8
9	88	73	81	5	73	0	16	1	0	0	0	30.03	20	7.4	8.5	18	20	706	88	8	7	9
10	85	74	80	4	74	0	15	1	0	.15	0	30.08	30	2.8	6.0	10	02	582	72	8	7	10
11	88	66	77	1	61	0	12		0	0	0	30.13	09	6.6	7.8	14	10	736	91	8	8	11
12	86	66	76	-1	62	0	11		0	0	0	30.20	10	2.1	6.3	10	06	709	88	7	9	12
13	87	65	76	-1	60	0	11	1 8	0	0	0	29.98	24	7.3	8.1	17	26	689	85	5	5	13
14	80	71	76	-1	60	0	11		0	0	0	29.89	28	12.2	12.9	17	29	811	100	0	0	14
15	83	67	75*	-2	57	0	10		0	0	0	29.82	26	11.1	12.1	16	25	812	100	0	0	15
16	87	72	80	3	67	0	15		0	0	0	29.85	23	6.0	8.5	13	26	757	93	0	0	16
17	88	71	80	3	70	0	15	1 8	0	0	0	29.84	18	3.4	8.5	12	20	717	88	6	6	17
18	90	71	81	3	68	0	16	1 3 8	0	.05	0	30.07	14	4.9	5.8	17	36	410	50	10	10	18
19	89	67	78	0	70	0	13	1 3 5	0	1.04	0	30.26	23	3.8	5.6	35	31	457	56	10	9	19
20	86	70	78	0	69	0	13	1 3	0	.74	0	30.03	28	4.8	6.8	14	19	566	69	7	8	20
21	88	69	79	1	65	0	14	1 8	0	0	0	30.22	36	5.1	6.0	10	11	720	88	0	1	21
22	88	67	78	0	65	0	13	1 8	0	0	0	30.02	08	.8	4.9	9	27	701	85	2	1	22
23	89	68	79	1	66	0	14	1 8	0	0	0	30.03	06	4.6	6.2	12	02	640	78	2	2	23
24	87	73	80	2	70	0	15	1 8	0	T	0	30.01	30	.4	5.2	17	36	616	75	7	8	24
25	89	75	82	3	72	0	17	1 8	0	T	0	29.98	31	2.7	6.6	14	27	688	84	5	4	25
26	90	73	82*	3	70	0	17	1 3 8	0	0	0	29.98	07	3.7	5.3	10	09	625	76	8	7	26
27	87	73	80	1	71	0	15	1 3	0	1.30	0	29.98	07	6.3	6.8	14	05	386	47	10	9	27
28	88	69	79	0	64	0	14		0	0	0	29.85	09	9.5	10.1	15	09	682	83	3	5	28
29	90	71	81	2	67	0	16	1	0	0	0	29.84	07	7.0	8.2	13	08	683	83	3	3	29
30	89	68	79	0	70	0	14	1 8	0	0	0	29.96	34	.4	5.9	9	36	718	87	1	1	30
31	90*	72	81	2	71	0	16	1 3 8	0	0	0	29.98	30	.4	7.5	14	32	649	78	2	2	31

SUM	SUM				TOTAL	TOTAL		TOTAL	TOTAL	FOR THE MONTH:						TOTAL	%	SUM	SUM
2705	2169				0	431	NUMBER OF DAYS	4.91	0	29.97	15	1.2	7.4	35	31	19607	FOR MONTH	171	180
AVG.	AVG.	AVG.	DEP.	AVG.	DEP.	DEP.	PRECIPITATION	DEP.						DATE: 19		POSSIBLE		AVG.	AVG.
87.3	70.0	78.7	1.5	68	0	53	≥ .01 INCH 7	2.58								25174	78	5.5	5.2

NUMBER OF DAYS				SEASON TO DATE			GREATEST IN 24 HOURS AND DATES				GREATEST DEPTH ON GROUND OF SNOW, ICE PELLETS OR ICE AND DATE	
MAXIMUM TEMP.		MINIMUM TEMP.		TOTAL	TOTAL	SNOW, ICE PELLETS ≥ 1.0 INCH 0	PRECIPITATION		SNOW, ICE PELLETS			
≥ 90°	≤ 32°	≤ 32°	≤ 0°	1039	760	THUNDERSTORMS 7	1.40	4	0		0	
				DEP.	DEP.	HEAVY FOG 1						
6	0	0	0	321	-105	CLEAR 12 PARTLY CLOUDY 7 CLOUDY 12						

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.
T TRACE AMOUNT
+ ALSO ON AN EARLIER DATE, OR DATES.
HEAVY FOG: - VISIBILITY 1/4 MILE OR LESS.
FIGURES FOR WIND DIRECTIONS ARE TENS OF DEGREES CLOCKWISE FROM TRUE NORTH. 00 = CALM.
DATA IN COLS. 6 AND 12-15 ARE BASED ON 7 OR MORE OBSERVATIONS PER DAY AT 3-HOUR INTERVALS.
FASTEST MILE WIND SPEEDS ARE FASTEST OBSERVED ONE-MINUTE VALUES WHEN DIRECTIONS ARE IN TENS OF DEGREES. THE / WITH THE DIRECTION INDICATES PEAK GUST SPEED.
ANY ERRORS DETECTED WILL BE CORRECTED AND CHANGES IN SUMMARY DATA WILL BE ANNOTATED IN THE ANNUAL SUMMARY.

SUMMARY BY HOURS

	AVERAGES							RESULTANT WIND	
			TEMPERATURE						
HOUR LOCAL TIME	SKY COVER (TENTHS)	STATION PRESSURE IN.	AIR °F	WET BULB °F	DEW PT. °F	RELATIVE HUMIDITY %	WIND SPEED M.P.H.	DIRECTION	SPEED M.P.H.
01	4	29.96	74	70	68	82	6.1	12	2.5
04	3	29.94	73	69	68	87	5.2	10	1.5
07	5	29.98	72	70	68	87	5.8	11	2.3
10	5	30.00	81	73	68	66	8.4	15	3.1
13	6	29.97	86	74	68	57	9.9	22	2.6
16	6	29.94	85	73	68	58	9.7	25	3.7
19	6	29.94	81	72	68	67	7.5	27	1.7
22	4	29.99	77	71	68	70	5.8	11	2.8

HOURLY PRECIPITATION (WATER EQUIVALENT IN INCHES)

	A.M. HOUR ENDING AT												P.M. HOUR ENDING AT												
DATE	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	DATE
1																									1
2																									2
3																									3
4									T	.02	.84	.43	.09	.01	.01										4
5																									5
6														T	T	.05				.10	.01	.07	T		6
7																									7
8																									8
9																									9
10										T	T	T		.03	.12										10
11																									11
12																									12
13																									13
14																									14
15																									15
16																									16
17																									17
18																T	T	.05							18
19															.11	.93	T								19
20																.61	.12	T	.01	T					20
21																									21
22																									22
23																									23
24															T										24
25															T										25
26																									26
27														T	.52	.75	.03	T							27
28																									28
29																									29
30																									30
31																									31

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noaa NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION / ENVIRONMENTAL DATA SERVICE

Daniel B. Mitchell
DIRECTOR, NATIONAL CLIMATIC CENTER

USCOMM--NOAA--ASHEVILLE 08/21/78 425

JUNE 1978
TAMPA, FLORIDA
NAT WEATHER SERVICE MET OBSY
INTERNATIONAL AIRPORT

Local Climatological Data

MONTHLY SUMMARY

JUNE 1978 TAMPA, FLORIDA

LATITUDE 27° 58' N LONGITUDE 82° 32' W ELEVATION (GROUND) 19 FT. STANDARD TIME USED: EASTERN WBAN #12842

	TEMPERATURE °F					DEGREE DAYS BASE 65°		WEATHER TYPES ON DATES OF OCCURRENCE	SNOW, ICE PELLETS OR ICE ON GROUND AT 07AM IN.	PRECIPITATION		AVG. STATION PRESSURE IN. ELEV. 11 FEET M.S.L.	WIND					SUNSHINE		SKY COVER TENTHS		
DATE	MAXIMUM	MINIMUM	AVERAGE	DEPARTURE FROM NORMAL	AVERAGE DEW POINT	HEATING (SEASON BEGINS WITH JUL. 1)	COOLING (SEASON BEGINS WITH JAN. 1)	1 FOG 2 HEAVY FOG 3 THUNDERSTORM 4 ICE PELLETS 5 HAIL 6 GLAZE 7 DUSTSTORM 8 SMOKE, HAZE 9 BLOWING SNOW		WATER EQUIVALENT IN.	SNOW, ICE PELLETS IN.		RESULTANT DIR.	RESULTANT SPEED M.P.H.	AVERAGE SPEED M.P.H.	FASTEST MILE SPEED M.P.H.	FASTEST MILE DIRECTION	MINUTES	PERCENT OF POSSIBLE	SUNRISE TO SUNSET	MIDNIGHT TO MIDNIGHT	DATE
1	2	3	4	5	6	7A	7B	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1	90	75	83	3	72	0	18	3 8	0	T	0	29.99	14	4.3	7.2	16	18	644	78	7	5	1
2	90	73	82	2	72	0	17	1 8	0	T	0	30.02	23	2.6	7.1	13	24	707	85	5	5	2
3	88	76	82	2	74	0	17	1 3	0	.21	0	30.02	20	5.5	7.8	14	27	680	82	10	10	3
4	88	75	82	2	74	0	17	3	0	.27	0	30.01	23	3.7	7.1	15	26	694	79	8	8	4
5	88	76	82	2	75	0	17		0	.05	0	30.01	27	3.8	9.2	12	27	587	71	10	8	5
6	90	74	82	2	72	0	17	8	0	0	0	30.03	20	4.0	8.3	10	27	756	92	8	5	6
7	92	76	84	4	71	0	19	8	0	0	0	30.03	17	4.9	8.8	10	19	743	90	4	4	7
8	90	78	84	4	74	0	19		0	.11	0	30.01	17	7.1	8.1	14	22	756	91	8	7	8
9	91	78	85	4	75	0	20		0	.02	0	30.02	22	5.0	7.8	13	28	758	91	8	8	9
10	93	78	86*	5	73	0	21	8	0	0	0	30.07	28	2.2	5.0	13	25	767	92	8	6	10
11	93	76	85	4	74	0	20	1 3 8	0	.09	0	30.07	07	3.6	5.3	13	07	717	86	4	4	11
12	93	74	84	3	73	0	19	1 3	0	.17	0	30.04	05	5.1	6.6	14	03	608	73	6	6	12
13	92	74	83	2	72	0	18	1 8	0	0	0	30.00	01	5.0	6.0	13	08	724	87	3	3	13
14	92	74	83	2	71	0	18	3 8	0	T	0	30.03	11	1.0	5.2	12	02	573	69	9	8	14
15	91	77	84	3	71	0	19	8	0	0	0	30.10	08	7.8	7.9	13	07	577	69	9	9	15
16	90	73	82	1	71	0	17	1 8	0	T	0	30.14	07	8.7	10.1	15	07	752	90	9	7	16
17	87	73	80	-1	68	0	15		0	0	0	30.17	08	8.9	10.1	15	07	728	87	6	5	17
18	88	70	79	-2	65	0	14		0	0	0	30.10	08	10.1	10.4	16	08	751	90	6	7	18
19	88	70*	79	-2	67	0	14		0	T	0	30.04	08	7.3	8.2	14	07	546	65	10	9	19
20	86	76	81	0	70	0	16		0	T	0	30.03	10	8.4	8.8	13	10	552	66	10	10	20
21	86	75	81	0	71	0	16	8	0	.06	0	30.03	11	4.2	8.6	12	16	498	59	10	10	21
22	80	73	77*	-4	73	0	12	1 3	0	.49	0	30.02	14	6.6	8.9	16	20	357	43	10	10	22
23	86	74	80	-2	75	0	15	1	0	.09	0	30.00	16	6.1	7.9	13	12	683	82	9	7	23
24	93	74	84	2	74	0	19	23 8	0	T	0	29.99	04	3.6	5.5	15	04	669	80	7	8	24
25	92	73	83	1	72	0	18	1 3 8	0	.06	0	29.98	11	1.2	4.3	10	19	722	86	4	3	25
26	93	76	85	3	74	0	20	1 8	0	0	0	30.02	12	3.7	6.6	10	15	646	78	4	3	26
27	93*	77	85	3	75	0	20	1 3 8	0	.11	0	30.08	08	1.7	5.8	17	08	620	74	5	5	27
28	92	74	83	1	75	0	18	1 8	0	0	0	30.06	27	2.3	4.2	8	26	751	90	7	6	28
29	90	77	84	2	74	0	19	1 8	0	T	0	30.02	31	4.1	5.5	13	28	704	84	7	6	29
30	92	78	85	3	75	0	20	1 3 8	0	.30	0	29.99	27	3.8	5.6	18	32	563	68	7	7	30

SUM	SUM				TOTAL	TOTAL		TOTAL	TOTAL	FOR THE MONTH:						TOTAL	%	SUM	SUM
2697	2248				0	529	NUMBER OF DAYS	2.03	0	30.04	11	2.0	6.9	18	32	19902	FOR MONTH	213	197
AVG.	AVG.	AVG.	DEP.	AVG.	DEP.	DEP.	PRECIPITATION	DEP.						DATE: 30		MONTHLY POSS.		AVG.	AVG.
89.9	74.9	82.4	1.4	72	0	49	≥ .01 INCH 13	-4.46								24987	79	7.1	6.6

NUMBER OF DAYS				SEASON TO DATE	
MAXIMUM TEMP.		MINIMUM TEMP.		TOTAL	TOTAL
				1039	1289
≥ 90°	≤ 32°	≤ 32°	≤ 0°	DEP.	DEP.
20	0	0	0	321	-55

NUMBER OF DAYS:
SNOW, ICE PELLETS ≥ 1.0 INCH 0
THUNDERSTORMS 11
HEAVY FOG 1
CLEAR 1 PARTLY CLOUDY 16 CLOUDY 13

GREATEST IN 24 HOURS AND DATES			GREATEST DEPTH ON GROUND OF SNOW, ICE PELLETS OR ICE AND DATE
PRECIPITATION		SNOW, ICE PELLETS	
.56	22-23	0	0

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.
T TRACE AMOUNT
+ ALSO ON AN EARLIER DATE, OR DATES.
HEAVY FOG: - VISIBILITY 1/4 MILE OR LESS.
FIGURES FOR WIND DIRECTIONS ARE TENS OF DEGREES CLOCKWISE FROM TRUE NORTH. 00 = CALM.
DATA IN COLS. 6 AND 12-15 ARE BASED ON 7 OR MORE OBSERVATIONS PER DAY AT 3-HOUR INTERVALS.
FASTEST MILE WIND SPEEDS ARE FASTEST OBSERVED ONE-MINUTE VALUES WHEN DIRECTIONS ARE IN TENS OF DEGREES. THE / WITH THE DIRECTION INDICATES PEAK GUST SPEED.
ANY ERRORS DETECTED WILL BE CORRECTED AND CHANGES IN SUMMARY DATA WILL BE ANNOTATED IN THE ANNUAL SUMMARY

FUNNEL CLOUD REPORTED BY PUBLIC 12 MILES SE AT 1334 ON THE 3RD. ON THE 16TH THE CONTROL TOWER REPORTED A FUNNEL CLOUD 10 MILES W OVER TAMPA BAY. TORNADO REPORTED ON 29TH AT 1145 18 MILES SW NEAR SEMINOLE.

SUMMARY BY HOURS

	AVERAGES							RESULTANT WIND	
			TEMPERATURE						
HOUR LOCAL TIME	SKY COVER (TENTHS)	STATION PRESSURE IN.	AIR °F	WET BULB °F	DEW PT. °F	RELATIVE HUMIDITY %	WIND SPEED M.P.H.	DIRECTION	SPEED M.P.H.
01	6	30.04	78	74	72	83	4.5	11	3.8
04	5	30.02	76	73	72	88	4.4	09	3.3
07	6	30.04	77	74	72	86	5.5	11	4.3
10	7	30.06	85	77	74	69	7.8	12	3.4
13	7	30.04	88	77	73	62	9.5	21	2.3
16	8	30.01	87	77	72	61	9.5	25	2.1
19	8	30.02	84	76	72	68	7.6	01	1.0
22	7	30.05	79	74	72	79	6.3	09	4.1

HOURLY PRECIPITATION (WATER EQUIVALENT IN INCHES)

	A.M. HOUR ENDING AT												P.M. HOUR ENDING AT												
DATE	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	DATE
1													T												1
2												T	T			T									2
3																						.19	.01	.25	3
4	.05	T	.04	.10	.08																				4
5									T	T	T									T	T	.05			5
6																									6
7																									7
8												.11													8
9									T	.02															9
10																									10
11																.09									11
12																	.05	.12							12
13																									13
14															T							T	T		14
15																									15
16															T	T							T		16
17																									17
18																									18
19																T	T	T							19
20																		T		T	T				20
21								T	T	T	T						T	.03	.03		T	T	T		21
22				T	T	.01	.01					.05	.10	.08	.04	T	.02	.06	T	T	.01	.10	.03	T	22
23		.03	T	T	T	.03	.03			T															23
24																		T							24
25																		.06							25
26																									26
27																			.08	.03					27
28																									28
29													T	T	T										29
30													.29	.01											30

SUBSCRIPTION PRICE: $2.55 PER YEAR. FOREIGN MAILING $1.85 EXTRA. SINGLE COPY: 20 CENTS FOR MONTHLY ISSUE. 20 CENTS FOR ANNUAL SUMMARY. OTHER DATA IN RECORDS ON FILE CAN BE FURNISHED AT COST VIA MICROFILM, MICROFICHE, OR PAPER COPIES OF ORIGINAL RECORDS. MAKE CHECKS PAYABLE TO DEPARTMENT OF COMMERCE, NOAA. SEND PAYMENTS, ORDERS, AND INQUIRIES TO NATIONAL CLIMATIC CENTER, FEDERAL BUILDING, ASHEVILLE, NORTH CAROLINA 28801.

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Daniel B. Mitchell
DIRECTOR, NATIONAL CLIMATIC CENTER

noaa NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION / ENVIRONMENTAL DATA SERVICE

USCOMM--NOAA--ASHEVILLE [illegible] 425

JULY 1978
TAMPA, FLORIDA
NAT WEATHER SERVICE MET OBSY
INTERNATIONAL AIRPORT

Local Climatological Data

MONTHLY SUMMARY

LATITUDE 27° 58 'N LONGITUDE 82° 32 'W ELEVATION (GROUND) 19 FT. STANDARD TIME USED: EASTERN WBAN #12842

DATE	TEMPERATURE °F MAXIMUM	MINIMUM	AVERAGE	DEPARTURE FROM NORMAL	AVERAGE DEW POINT	DEGREE DAYS BASE 65° HEATING (SEASON BEGINS WITH JUL.)	COOLING (SEASON BEGINS WITH JAN.)	WEATHER TYPES ON DATES OF OCCURRENCE 1 FOG 2 HEAVY FOG 3 THUNDERSTORM 4 ICE PELLETS 5 HAIL 6 GLAZE 7 DUSTSTORM 8 SMOKE, HAZE 9 BLOWING SNOW	SNOW, ICE PELLETS OR ICE ON GROUND AT 07AM IN.	PRECIPITATION WATER EQUIVALENT IN	SNOW, ICE PELLETS IN.	AVG. STATION PRESSURE IN. ELEV. 19 FEET M.S.L.	WIND RESULTANT DIR.	RESULTANT SPEED M.P.H.	AVERAGE SPEED M.P.H.	FASTEST MILE SPEED M.P.H.	DIRECTION	SUNSHINE MINUTES	PERCENT OF POSSIBLE	SKY COVER TENTHS SUNRISE TO SUNSET	MIDNIGHT TO MIDNIGHT	DATE
1	2	3	4	5	6	7A	7B	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1	93	77	85	4	75	0	20		0	0	0	29.99	26	3.7	5.6	14	28	725	87	7	7	1
2	89	78	84	3	75	0	19	1 3	0	0	0	29.97	22	3.3	4.5	10	19	683	83	9	8	2
3	91	78	85	4	75	0	20	3	0	T	0	29.95	27	6.1	6.5	12	29	756	91	9	6	3
4	93	82	88*	6	75	0	23		0	0	0	29.99	25	7.3	7.6	13	26	743	89	8	7	4
5	89	80	85	3	75	0	20		0	0	0	30.02	24	4.4	6.3	12	32	752	91	10	8	5
6	90	78	84	2	75	0	19	1 3	0	.03	0	30.05	12	2.1	5.2	17	23	473	57	8	7	6
7	89	76	83	1	74	0	18	1 3 8	0	.05	0	30.06	10	2.8	5.8	12	23	306	40	9	7	7
8	88	73	81	-1	73	0	16	1 3 8	0	T	0	30.08	12	2.2	4.5	8	01	403	50	8	7	8
9	91	74	83	1	72	0	18	1 3	0	T	0	30.08	36	1.6	4.9	17	18	617	74	7	6	9
10	92	76	84	2	72	0	19		0	0	0	30.09	25	1.8	6.5	16	15	712	86	8	8	10
11	92	76	84	2	72	0	19	3	0	.01	0	30.04	19	1.5	5.8	12	11	464	58	9	7	11
12	89	74	82	0	73	0	17	1 3 8	0	.77	0	30.03	12	2.2	4.3	12	18	384	46	10	8	12
13	92	76	84	2	73	0	19	1	0	.30	0	30.06	28	3.4	6.5	12	31	574	69	7	8	13
14	91	75	83	1	73	0	18	1 3	0	.85	0	30.04	28	3.0	6.3	18	06	576	70	8	7	14
15	89	75	82	0	74	0	17	1 3	0	T	0	29.97	15	4.6	5.6	13	27	666	81	6	6	15
16	88	77	83	1	75	0	18	3	0	.27	0	29.90	18	6.1	7.2	21	24	663	80	9	8	16
17	87	77	82	0	75	0	17	3	0	.82	0	29.94	18	4.4	6.9	17	28	252	31	10	8	17
18	89	77	83	1	76	0	18	1 3	0	.19	0	30.07	21	2.4	5.3	10	25	519	63	10	10	18
19	84	74	79	-3	75	0	14	1 3	0	.65	0	30.08	21	3.0	6.3	13	35	306	37	9	9	19
20	88	75	82	0	73	0	17	1	0	T	0	30.06	13	3.5	6.0	9	23	614	75	10	9	20
21	93	76	85	3	74	0	20		0	T	0	30.07	10	7.8	8.2	13	10	601	73	7	5	21
22	90	77	84	2	74	0	19	3	0	.03	0	30.08	11	5.8	8.1	14	13	642	78	6	4	22
23	91	76	84	2	74	0	19	3	0	0	0	30.12	10	6.8	7.8	13	12	606	74	7	6	23
24	93*	77	85	3	73	0	20	1 8	0	0	0	30.15	13	5.1	5.9	13	11	696	85	4	3	24
25	91	72	82	0	73	0	17	1 3 8	0	.51	0	30.14	13	4.5	7.2	17	18	488	60	5	5	25
26	88	73	81	-1	72	0	16	1 3 8	0	.85	0	30.13	10	3.8	5.0	15	06	533	65	6	5	26
27	85	72*	79*	-3	71	0	14	1 3	0	.17	0	30.13	19	5.8	8.6	15	21	417	51	7	7	27
28	91	76	84	2	73	0	19		0	0	0	30.11	20	7.0	8.3	13	24	630	79	8	8	28
29	91	77	84	2	75	0	19	1 8	0	0	0	30.10	21	5.5	7.9	14	28	687	86	8	8	29
30	88	78	83	1	75	0	18	3	0	.30	0	30.08	22	5.2	5.8	14	20	567	70	9	7	30
31	89	77	83	1	75	0	18		0	.03	0	30.07	22	3.4	7.1	15	27	524	65	9	7	31

SUM	SUM				TOTAL	TOTAL		TOTAL	TOTAL	FOR THE MONTH:						TOTAL	%	SUM	SUM
2784	2359				0	565	NUMBER OF DAYS	5.85	0	30.05	17	2.2	6.4	21	24	17609	FOR	250	219
AVG.	AVG.	AVG.	DEP.	AVG.	DEP.	DEP.	PRECIPITATION	DEP.						DATE: 16		POSSIBLE	MONTH	AVG.	AVG.
89.8	76.1	83.0	1.1	74	0	41	≥ .01 INCH 15	-2.58								25514	70	8.1	7.1

				SEASON TO DATE		SNOW, ICE PELLETS			
NUMBER OF DAYS				TOTAL	TOTAL	≥ 1.0 INCH 0	GREATEST IN 24 HOURS AND DATES		GREATEST DEPTH ON GROUND OF SNOW, ICE PELLETS OR ICE AND DATE
MAXIMUM TEMP.		MINIMUM TEMP.		0	1854	THUNDERSTORMS 20	PRECIPITATION	SNOW, ICE PELLETS	
≥ 90°	≤ 32°	≤ 32°	≤ 0°	DEP.	DEP.	HEAVY FOG 0	1.35 25-26	0	0
17	0	0	0	0	-15	CLEAR 0	PARTLY CLOUDY 11	CLOUDY 20	

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.
T TRACE AMOUNT
+ ALSO ON AN EARLIER DATE, OR DATES.
HEAVY FOG: - VISIBILITY 1/4 MILE OR LESS.
FIGURES FOR WIND DIRECTIONS ARE TENS OF DEGREES CLOCKWISE FROM TRUE NORTH. 00 = CALM.
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FASTEST MILE WIND SPEEDS ARE FASTEST OBSERVED ONE-MINUTE VALUES WHEN DIRECTIONS ARE IN TENS OF DEGREES. THE / WITH THE DIRECTION INDICATES PEAK GUST SPEED.
ANY ERRORS DETECTED WILL BE CORRECTED AND CHANGES IN SUMMARY DATA WILL BE ANNOTATED IN THE ANNUAL SUMMARY

FUNNEL CLOUDS REPORTED AT ST PETERSBURG ON JULY 4TH, AND HUDSON ON JULY 7TH. TORNADO REPORTED BY PUBLIC AT 30TH & MEDICAL DRIVE AT 1410 ON JULY 12TH.

SUMMARY BY HOURS

HOUR (LOCAL TIME)	AVERAGES SKY COVER (TENTHS)	STATION PRESSURE IN.	TEMPERATURE AIR °F	WET BULB °F	DEW PT. °F	RELATIVE HUMIDITY %	WIND SPEED M.P.H.	RESULTANT WIND DIRECTION	SPEED M.P.H.
01	5	30.05	79	75	74	85	4.2	14	2.1
04	5	30.02	77	75	74	89	4.6	13	3.3
07	6	30.05	79	75	74	88	5.1	12	4.0
10	7	30.07	86	78	75	70	7.6	17	3.6
13	9	30.05	87	78	74	66	8.7	23	3.2
16	9	30.02	85	77	74	69	9.1	24	2.9
19	10	30.04	83	76	73	74	6.3	21	1.7
22	7	30.06	80	75	73	81	5.3	18	3.0

HOURLY PRECIPITATION (WATER EQUIVALENT IN INCHES)

DATE	A.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	P.M. HOUR ENDING AT 1	2	3	4	5	6	7	8	9	10	11	12	DATE
1																									1
2																									2
3						T	T																		3
4																									4
5																									5
6					T									.01	.01	.01	T			T					6
7													.02	.02	T	.01	T	T	T						7
8																T	T								8
9														T						T					9
10																									10
11														.01	T	T				T	T				11
12													T	.45	.25	.04	.03	T		T	T	T	T	T	12
13																						T	.30		13
14																	.58	.25	.01		.01	T	T		14
15												T								T	T				15
16										T	T		T			.04		.06	.14		T	.03	T	T	16
17	.06	.01	.02							T	.33	T	.17	.10	.02	.08	.03	T	T	T	T		T		17
18						T	.09	.10	T			T	T	T											18
19	.05	T						T	T		.38	.17	T	.05	T	T	T		T	T	T				19
20			T	T																	T				20
21																T									21
22													T	.02	T	T	.01								22
23																									23
24																									24
25													T	T		.28	.22	T	.01	T					25
26												T	.79	.01	.05	T									26
27											.08		.01	T	.04	.01	.02	T	T	.01	T	T			27
28																									28
29																									29
30						.29	.01		T																30
31															.03										31

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noaa NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION / ENVIRONMENTAL DATA AND INFORMATION SERVICE

Daniel B. Mitchell
DIRECTOR, NATIONAL CLIMATIC CENTER

USCOMM--NOAA--ASHEVILLE 08/23/78 425

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AUGUST 1978
TAMPA. FLORIDA
NAT WEATHER SERVICE MET OBSY
INTERNATIONAL AIRPORT

Local Climatological Data

MONTHLY SUMMARY

AUGUST 1978 TAMPA. FLORIDA

LATITUDE 27° 58 ' N LONGITUDE 82° 32 ' W ELEVATION (GROUND) 19 FT. STANDARD TIME USED: EASTERN WBAN #12842

DATE	TEMPERATURE °F: MAXIMUM	MINIMUM	AVERAGE	DEPARTURE FROM NORMAL	AVERAGE DEW POINT	DEGREE DAYS BASE 65°: HEATING (SEASON BEGINS WITH JUL 1)	COOLING (SEASON BEGINS WITH JAN 1)	WEATHER TYPES ON DATES OF OCCURRENCE 1 FOG 2 HEAVY FOG 3 THUNDERSTORM 4 ICE PELLETS 5 HAIL 6 GLAZE 7 DUSTSTORM 8 SMOKE, HAZE 9 BLOWING SNOW	SNOW, ICE PELLETS OR ICE ON GROUND AT 07AM IN.	PRECIPITATION: WATER EQUIVALENT IN.	SNOW, ICE PELLETS IN.	AVG. STATION PRESSURE IN. ELEV. 11 FEET M.S.L.	WIND: RESULTANT DIR.	RESULTANT SPEED M.P.H.	AVERAGE SPEED M.P.H.	FASTEST MILE: SPEED M.P.H.	DIRECTION	SUNSHINE: MINUTES	PERCENT OF POSSIBLE	SKY COVER TENTHS: SUNRISE TO SUNSET	MIDNIGHT TO MIDNIGHT	DATE
1	2	3	4	5	6	7A	7B	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1	82	74	78*	-4	74	0	13	1 3	0	.82	0	30.07	19	4.4	9.5	13	03	63	8	10	8	1
2	86	72	79	-3	73	0	14	1 3 8	0	.33	0	30.03	14	3.3	5.6	12	03	366	46	10	9	2
3	86	73	80	-2	73	0	15	1 3 8	0	T	0	30.01	14	3.1	9.0	12	16	623	77	6	7	3
4	90	74	82	0	74	0	17	1 3	0	T	0	30.00	07	5.2	9.9	14	34	457	58	9	9	4
5	90	73	82	0	73	0	17	3	0	.11	0	30.04	08	3.5	6.3	14	09	624	79	6	5	5
6	91	75	83	1	75	0	18	1 3	0	.58	0	30.08	13	4.5	5.8	21	12	554	69	8	5	6
7	91	76	84	2	73	0	19		0	0	0	30.08	10	8.7	9.1	14	12	628	78	6	5	7
8	94	76	85	3	74	0	20	3	0	T	0	30.09	10	5.1	6.5	15	22	535	67	7	8	8
9	92	72*	82	0	73	0	17	1 3 8	0	1.18	0	30.09	13	3.8	7.3	25	18	617	77	7	7	9
10	91	75	83	1	74	0	18	1 3 8	0	0	0	30.06	11	2.6	6.9	17	15	581	73	7	8	10
11	88	76	82	0	75	0	17	1 3 8	0	.08	0	30.05	10	4.2	7.3	10	24	626	79	10	8	11
12	87	77	82	0	76	0	17	3	0	.07	0	30.08	17	4.7	5.2	10	24	237	30	9	9	12
13	87	78	83	0	75	0	18	3	0	T	0	30.09	14	3.9	4.9	10	32	578	73	8	8	13
14	91	75	83	0	75	0	18	3 8	0	0	0	30.10	03	1.7	5.3	12	22	636	81	4	4	14
15	93	76	85	2	75	0	20	3 8	0	.66	0	30.12	14	3.6	7.6	23	09	660	84	5	4	15
16	92	77	85	2	75	0	20	3 8	0	0	0	30.09	08	.4	5.8	14	33	725	92	3	3	16
17	91	73	82	-1	75	0	17	3	0	.31	0	30.06	22	.7	6.6	26	16	688	88	6	6	17
18	88	73	81	-2	74	0	16	1 3 8	0	0	0	30.05	24	1.6	5.3	12	22	677	88	6	7	18
19	90	76	83	1	75	0	18	1 3 8	0	T	0	30.07	01	2.5	6.5	14	27	561	72	7	7	19
20	91	76	84	2	74	0	19	1	0	0	0	30.07	36	2.8	4.8	12	27	726	93	3	3	20
21	92	77	85	3	74	0	20	1 8	0	0	0	30.06	07	5.8	6.0	8	09	649	83	8	4	21
22	93	78	85	3	74	0	20	1 8	0	.34	0	30.03	08	5.9	6.2	18	08	629	81	3	2	22
23	92	77	85	3	73	0	20	8	0	.08	0	30.03	08	6.6	6.8	14	10	722	93	3	3	23
24	91	75	83	1	71	0	18	1 3	0	.21	0	30.03	08	6.6	8.3	17	14	605	78	4	4	24
25	90	75	83	1	72	0	18	1 3 8	0	T	0	30.03	11	5.1	6.6	10	15	363	47	9	8	25
26	91	75	83	1	72	0	18	1	0	0	0	30.03	35	.2	5.2	8	27	704	91	7	6	26
27	94*	75	85*	3	73	0	20	1	0	0	0	30.05	05	2.3	5.5	7	14	464	60	3	4	27
28	91	77	84	2	71	0	19	1 8	0	0	0	30.04	11	4.9	6.0	8	13	464	60	2	3	28
29	92	75	84	2	73	0	19	1 3 8	0	.14	0	30.00	12	2.7	6.0	12	27	620	81	4	3	29
30	92	75	84	2	74	0	19	1 3 8	0	.79	0	30.03	12	3.6	6.8	15	12	560	72	4	3	30
31	91	75	83	1	74	0	18	1 3 8	0	.25	0	30.03	07	6.3	7.1	24	01	426	57	5	5	31

SUM	SUM				TOTAL	TOTAL		TOTAL	TOTAL	FOR THE MONTH:						TOTAL	%	SUM	SUM	
2801	2329				0	557	NUMBER OF DAYS	5.97	0	30.05	10	2.0	6.2	26	16	17353	FOR	183	169	
AVG.	AVG.	AVG.	DEP.	AVG.	DEP.	DEP.	PRECIPITATION	DEP.						DATE: 17		POSSIBLE MONTH		AVG.	AVG.	
90.4	75.1	82.8	2.6	74	0	24	≥ .01 INCH 15	-2.03								24352	71	5.9	5.5	
					SEASON TO DATE		SNOW, ICE PELLETS													
NUMBER OF DAYS					TOTAL	TOTAL	≥ 1.0 INCH 0	GREATEST IN 24 HOURS AND DATES				GREATEST DEPTH ON GROUND OF SNOW, ICE PELLETS OR ICE AND DATE								
MAXIMUM TEMP.		MINIMUM TEMP.			0	2411	THUNDERSTORMS 23	PRECIPITATION		SNOW, ICE PELLETS										
≥ 90°	≤ 32°	≤ 32°	≤ 0°		DEP.	DEP.	HEAVY FOG 0	1.18	9	0		0								
24	0	0	0		0	9	CLEAR 5	PARTLY CLOUDY 18		CLOUDY 8										

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.
T TRACE AMOUNT
+ ALSO ON AN EARLIER DATE, OR DATES.
HEAVY FOG: - VISIBILITY 1/4 MILE OR LESS.
FIGURES FOR WIND DIRECTIONS ARE TENS OF DEGREES CLOCKWISE FROM TRUE NORTH. 00 = CALM.
DATA IN COLS. 6 AND 12-15 ARE BASED ON 7 OR MORE OBSERVATIONS PER DAY AT 3-HOUR INTERVALS.
FASTEST MILE WIND SPEEDS ARE FASTEST OBSERVED ONE-MINUTE VALUES WHEN DIRECTIONS ARE IN TENS OF DEGREES. THE / WITH THE DIRECTION INDICATES PEAK GUST SPEED.
ANY ERRORS DETECTED WILL BE CORRECTED AND CHANGES IN SUMMARY DATA WILL BE ANNOTATED IN THE ANNUAL SUMMARY

PILOT REPORTED WATERSPOUT 20 MILES SSW AT 1135 ON AUG. 1ST. TORNADO REPORTED BY PUBLIC 5 MILES NE AT 2114 LST ON AUG 11TH. WATERSPOUT SEEN BY PUBLIC ON HILLSBOROUGH BAY AT 1833 ON AUG. 15TH. POLICE REPORTED FUNNEL CLOUD OVER LAKE TARPON AT 0020 LST ON AUG 30TH.

SUMMARY BY HOURS

HOUR LOCAL TIME	AVERAGES: SKY COVER TENTHS	STATION PRESSURE IN.	TEMPERATURE: AIR °F	WET BULB °F	DEW PT. °F	RELATIVE HUMIDITY %	WIND SPEED M.P.H.	RESULTANT WIND: DIRECTION	SPEED M.P.H.
01	4	30.08	79	75	73	87	5.0	09	3.8
04	3	30.03	79	74	73	91	4.5	08	4.0
07	4	30.06	76	75	74	93	5.2	10	4.5
10	4	30.09	85	77	74	73	7.2	12	5.3
13	6	30.06	88	78	74	64	7.3	11	2.4
16	8	30.02	88	78	73	63	8.6	24	2.0
19	8	30.03	83	76	73	75	7.0	07	1.8
22	7	30.07	79	75	73	88	5.2	09	2.7

HOURLY PRECIPITATION (WATER EQUIVALENT IN INCHES)

DATE	A. M. HOUR ENDING AT: 1	2	3	4	5	6	7	8	9	10	11	12	P. M. HOUR ENDING AT: 1	2	3	4	5	6	7	8	9	10	11	12	DATE
1									.07		T	.50	.17	.03	T	.01	T							.04	1
2						.03	.09										.04	.04	.08	.03	T			.02	2
3	T														T	T									3
4																	T								4
5																	T	T	.07	.03	.01				5
6																.25	.33								6
7																									7
8																T									8
9																	.24	.12	.78	.03	.01				9
10																									10
11																					T	.02	.05	.01	11
12	T	.03	.03	T							T	.01	T		T						T	T			12
13									T				T	T	T										13
14																									14
15																			.09	.57	T				15
16																									16
17																						.31	T		17
18																									18
19																		T	T	T					19
20																									20
21																									21
22																.34									22
23																					T	.08			23
24																T	.21								24
25																T									25
26																									26
27																									27
28																									28
29																			.13	.01					29
30																			.50	.29					30
31																T	.25			T	T				31

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I CERTIFY THAT THIS IS AN OFFICIAL PUBLICATION OF THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, AND IS COMPILED FROM RECORDS ON FILE AT THE NATIONAL CLIMATIC CENTER, ASHEVILLE, NORTH CAROLINA 28801.

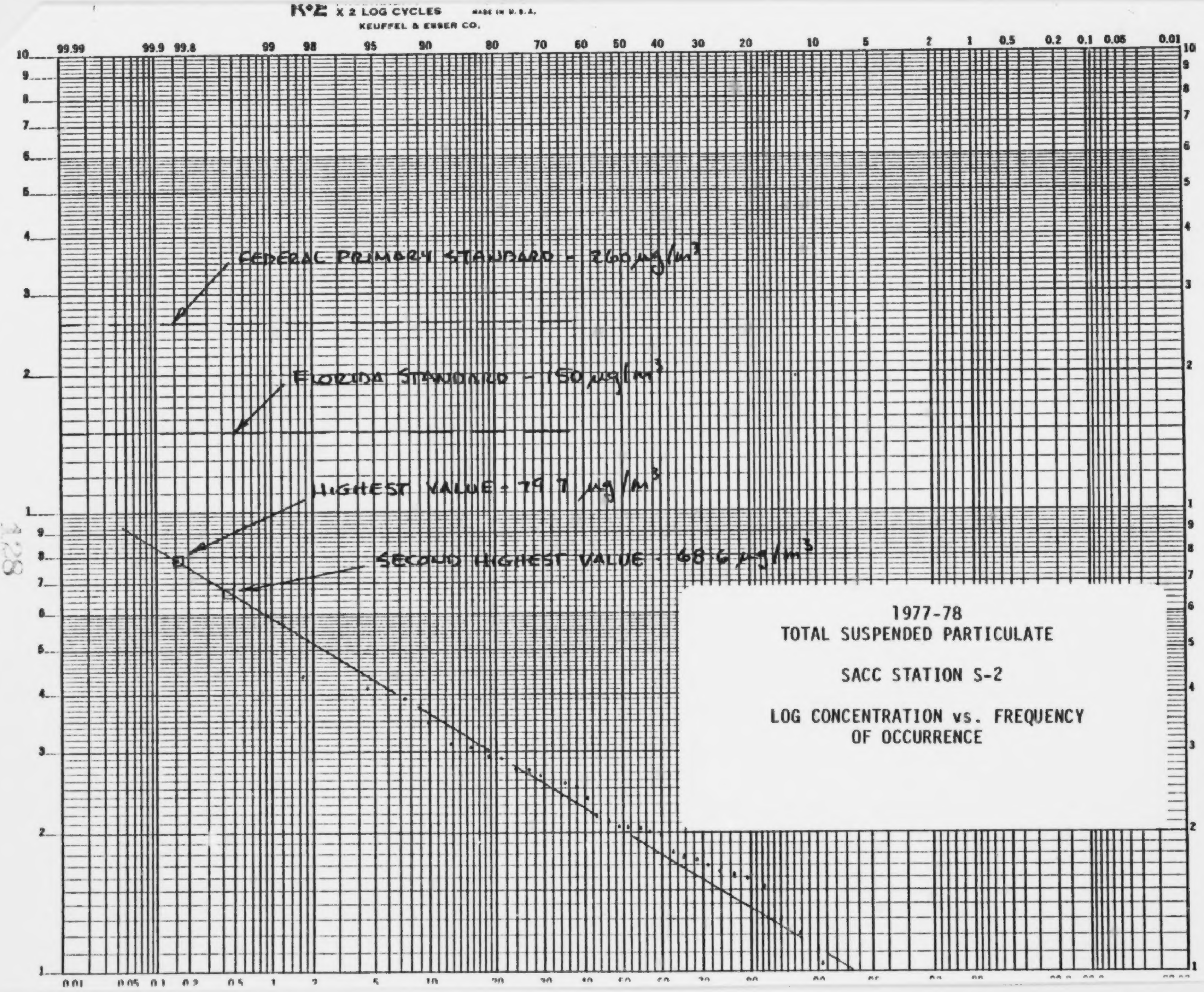
noaa NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION / ENVIRONMENTAL DATA AND INFORMATION SERVICE

Daniel B. Mitchell
DIRECTOR, NATIONAL CLIMATIC CENTER

USCOMM--NOAA--ASHEVILLE 09/25/78 425

APPENDIX B

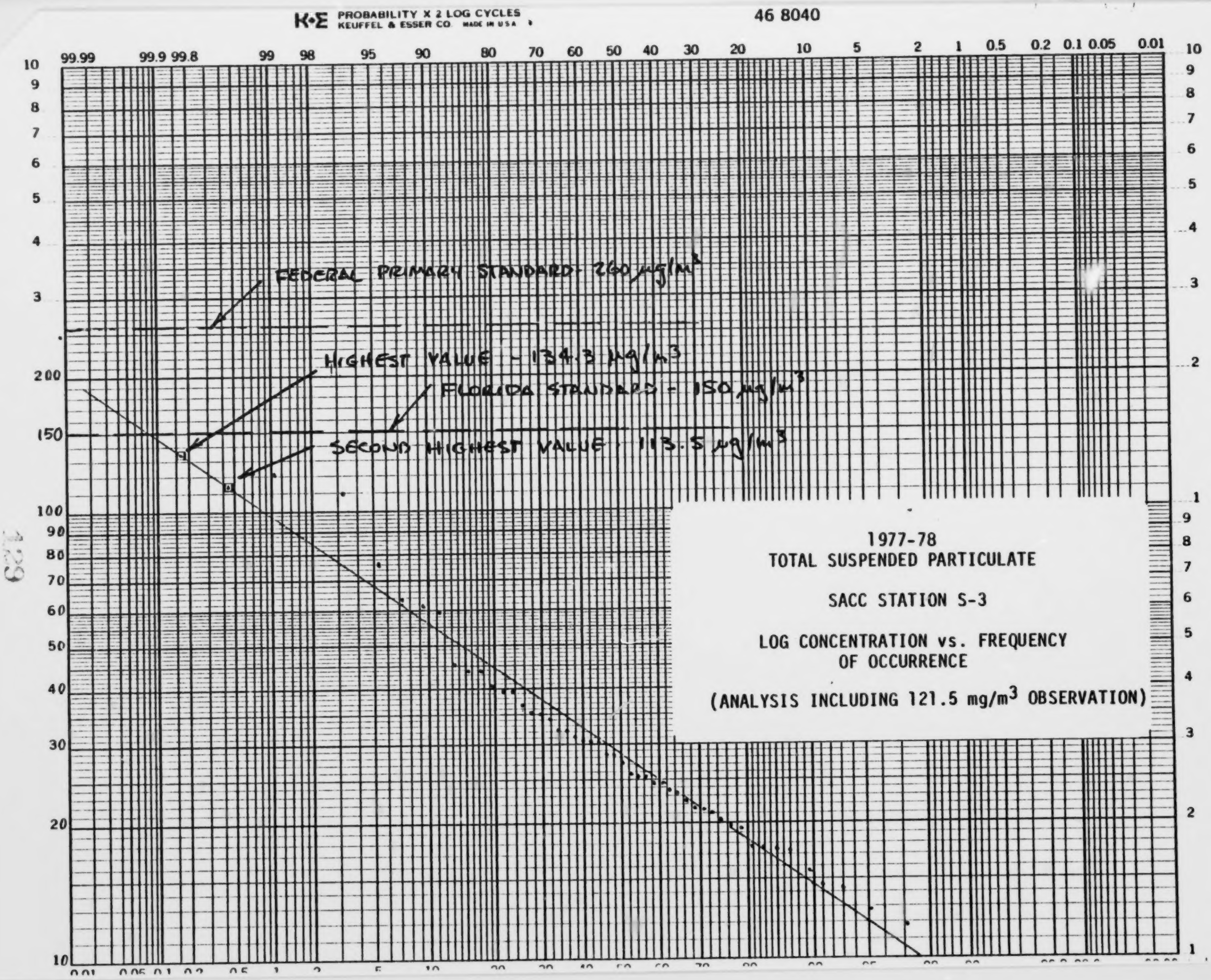
STATISTICAL ANALYSIS OF TSP AND SO_2 MEASUREMENTS



1977-78
TOTAL SUSPENDED PARTICULATE

SACC STATION S-2

LOG CONCENTRATION vs. FREQUENCY
OF OCCURRENCE

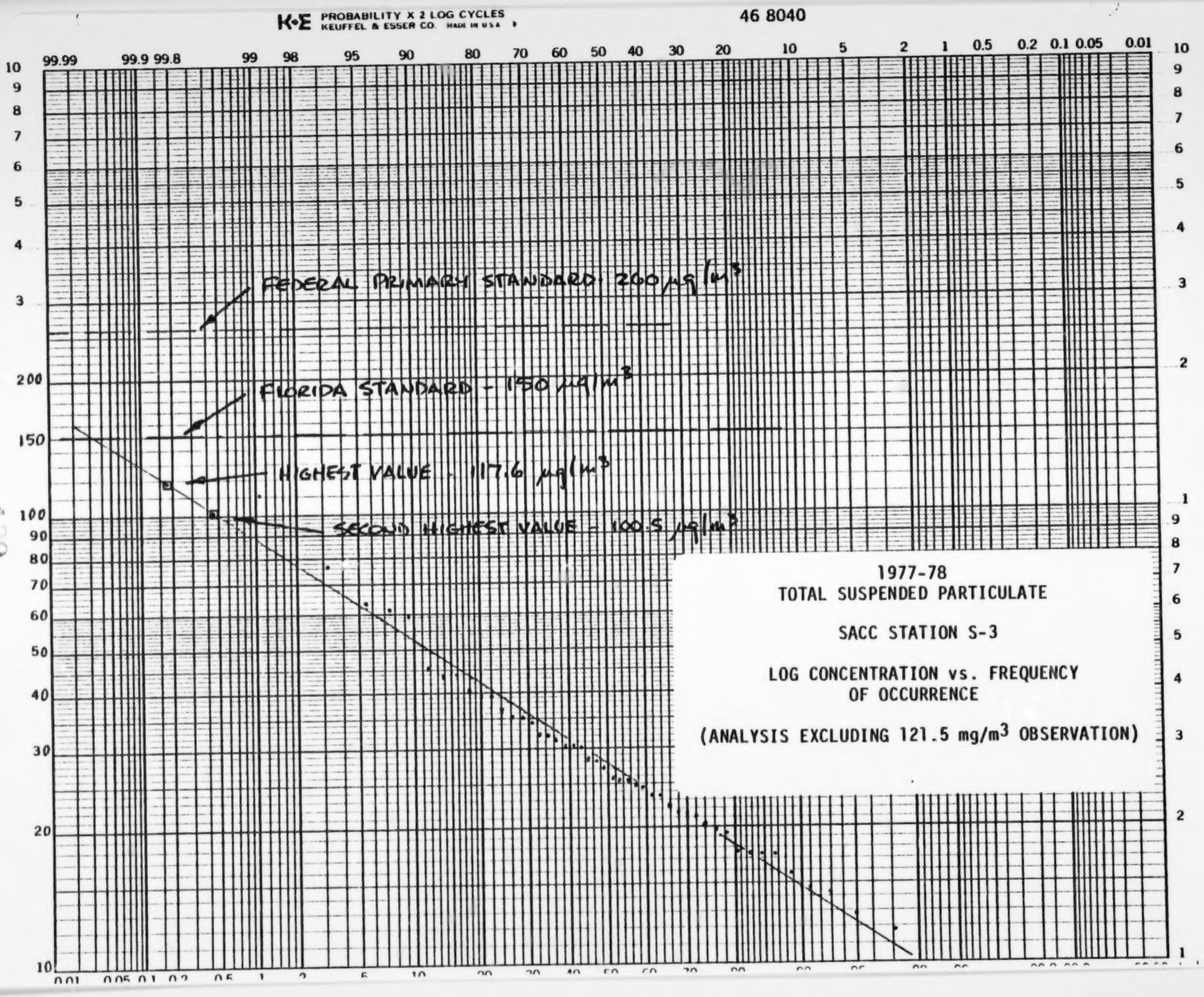


1977-78
TOTAL SUSPENDED PARTICULATE

SACC STATION S-3

LOG CONCENTRATION vs. FREQUENCY
OF OCCURRENCE

(ANALYSIS INCLUDING 121.5 mg/m^3 OBSERVATION)

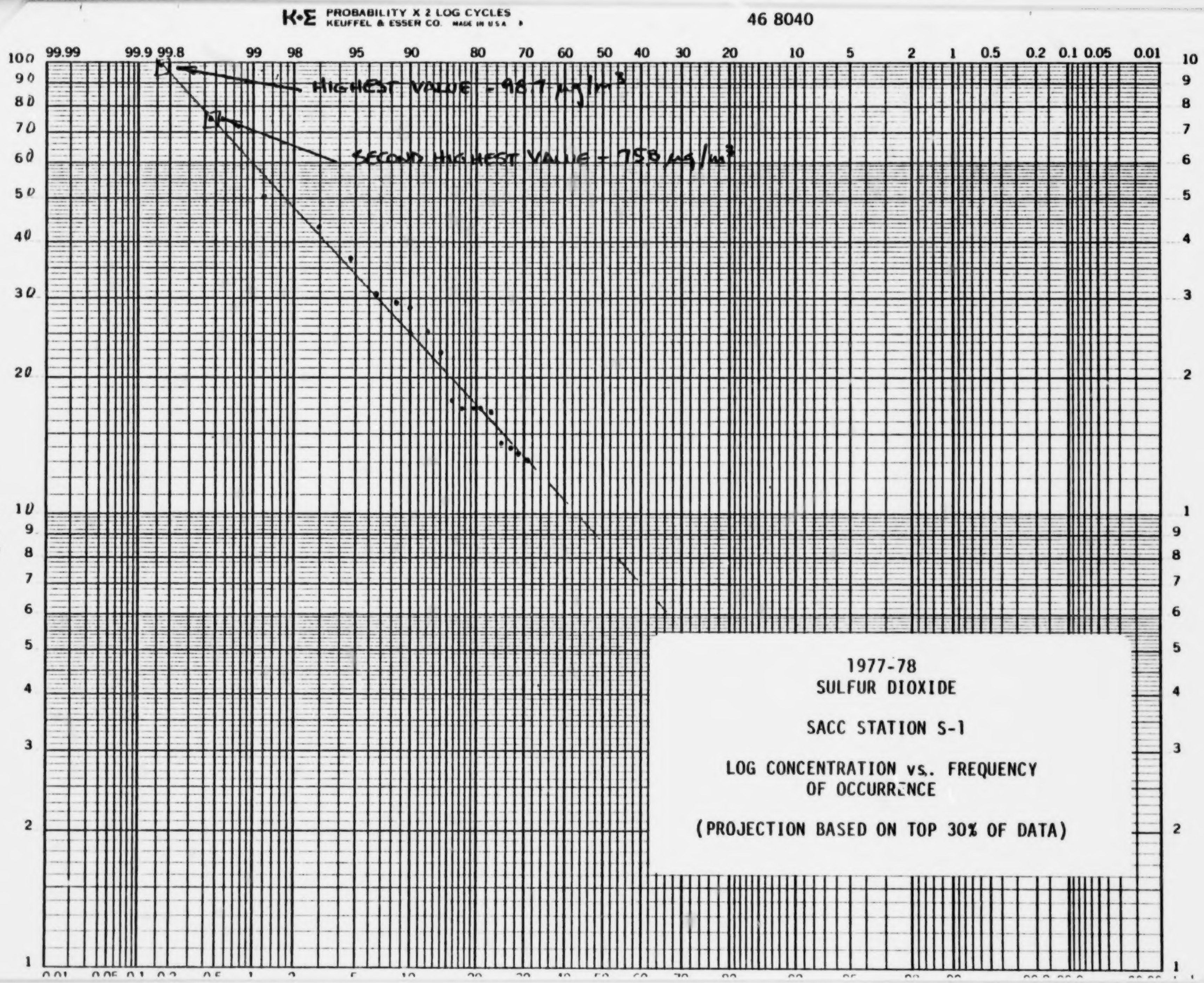


1977-78
TOTAL SUSPENDED PARTICULATE

SACC STATION S-3

LOG CONCENTRATION vs. FREQUENCY
OF OCCURRENCE

(ANALYSIS EXCLUDING 121.5 mg/m^3 OBSERVATION)

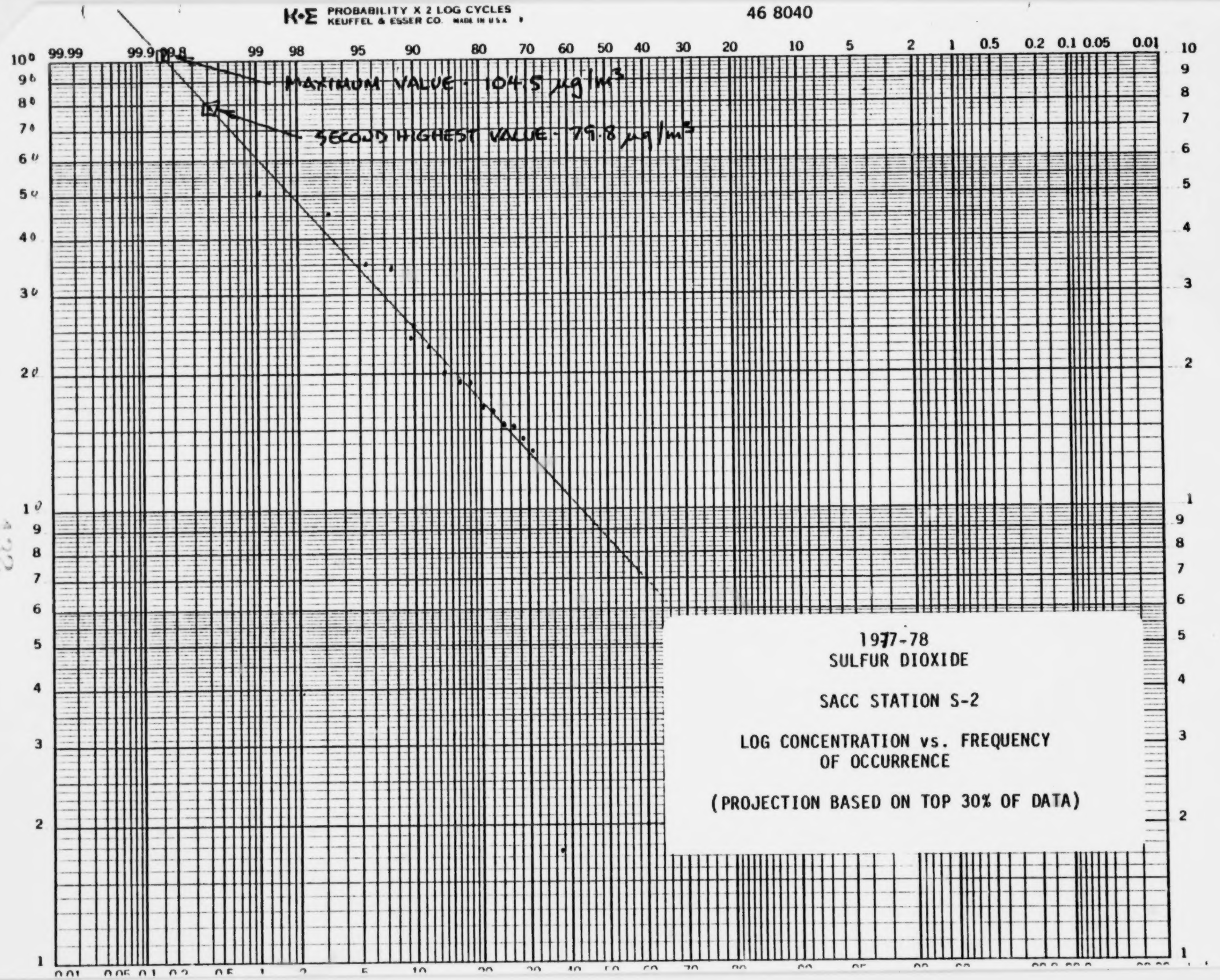


1977-78
SULFUR DIOXIDE

SACC STATION S-1

LOG CONCENTRATION vs. FREQUENCY
OF OCCURRENCE

(PROJECTION BASED ON TOP 30% OF DATA)

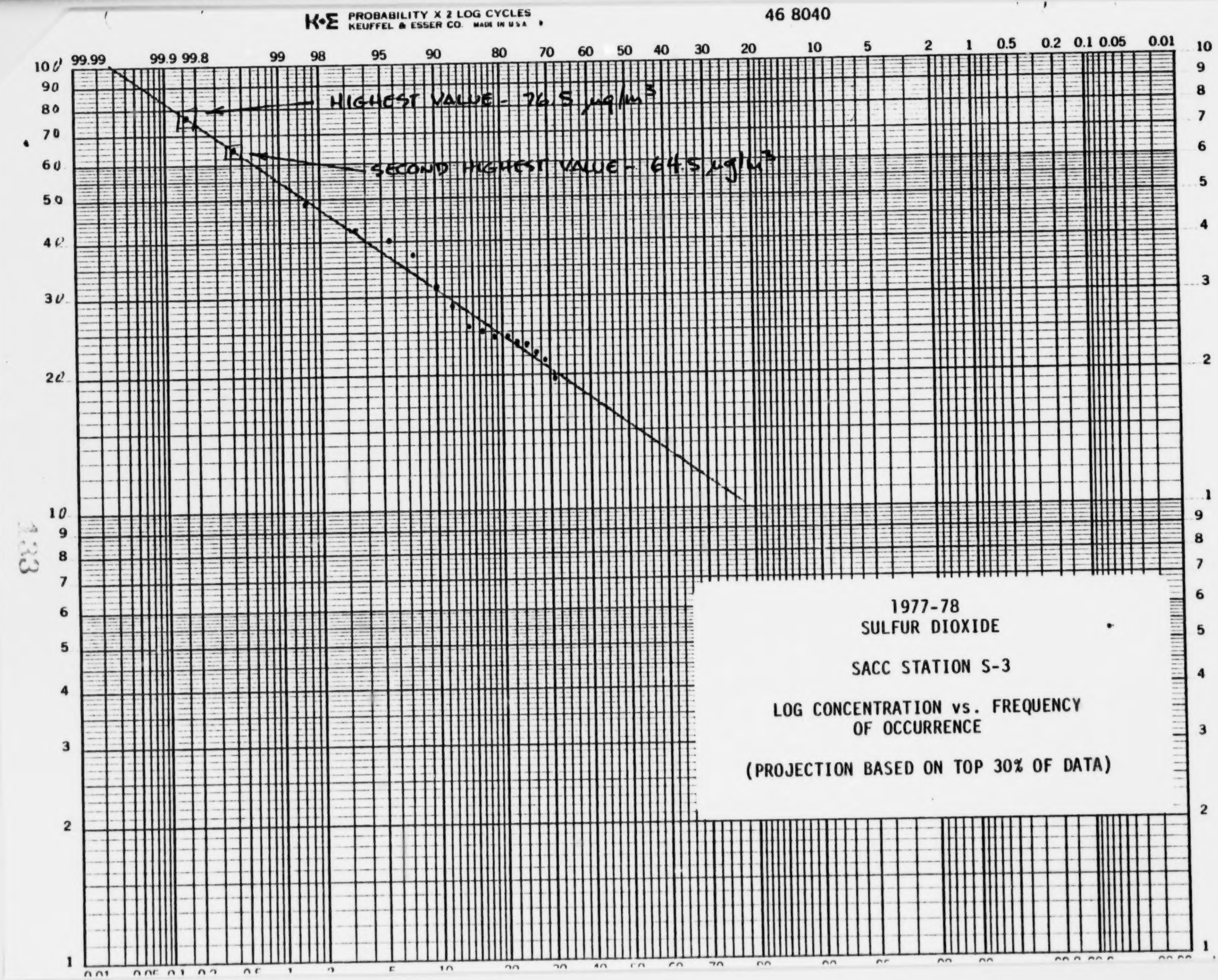


1977-78
SULFUR DIOXIDE

SACC STATION S-2

LOG CONCENTRATION vs. FREQUENCY
OF OCCURRENCE

(PROJECTION BASED ON TOP 30% OF DATA)



1977-78
SULFUR DIOXIDE

SACC STATION S-3

LOG CONCENTRATION vs. FREQUENCY
OF OCCURRENCE

(PROJECTION BASED ON TOP 30% OF DATA)

APPENDIX C

SOURCE INVENTORIES

CI

JFS

CONSERVATION CONSULTANTS, INC.
POST OFFICE BOX 35 • PALMETTO, FLORIDA 33561
TELEPHONE 813-722-6668
Consultants in Environmental Biology and Engineering

June 28, 1979

Mr. Lewis H. Nagler
U.S. Environmental Protection Agency
Region IV
345 Courtland, N.E.
Atlanta, Gerogia 30308

Re: SACC (Swift) Duette Mine EIS

Dear Mr. Nagler:

Enclosed is a diagram, summary listing and detailed listing of sources that Conservation Consultants Inc., has developed for use in the 1977 baseline and projected 1982 long term modeling efforts for the referenced project.

All sources within 30 kilometers of the proposed plant site and sources within 50 kilometers having total particulate emissions of 50 tons per year or greater have been included. The attached lists (1977, 1982) will be used for annual (AQDM) purposes unless further revisions are necessary. They were developed with power plants at 100 percent generation and the remaining sources on growth factors following the PEDCO methodology because of disparities between the process weight allowable and actual emissions.

It is understood that a more limited number of sources may be adequate for short term (24-hour) analysis with the PTMTP-W model. To simplify analysis we would propose the following:

- o All sources within ± 45 degrees of 1 or 2 highest, second highest day wind angles. to a radius of 30 km.
- o All sources within 30 kilometers.
- o All power generation stations.
- o All seasonal operations (maximum daily rates).
- o All sources greater than 274 lb/day (50 TPY).

If you feel it would be worthwhile for the 30 to 50 kilometer range, we could compute composite sources, i.e., same volumetric flow, average temperature, average stack velocity, for the balance of smaller emissions at each source location.

We would appreciate your advise as soon as possible. You may call me or John Schatmeyer at (813) 722-6668.

Very truly yours,

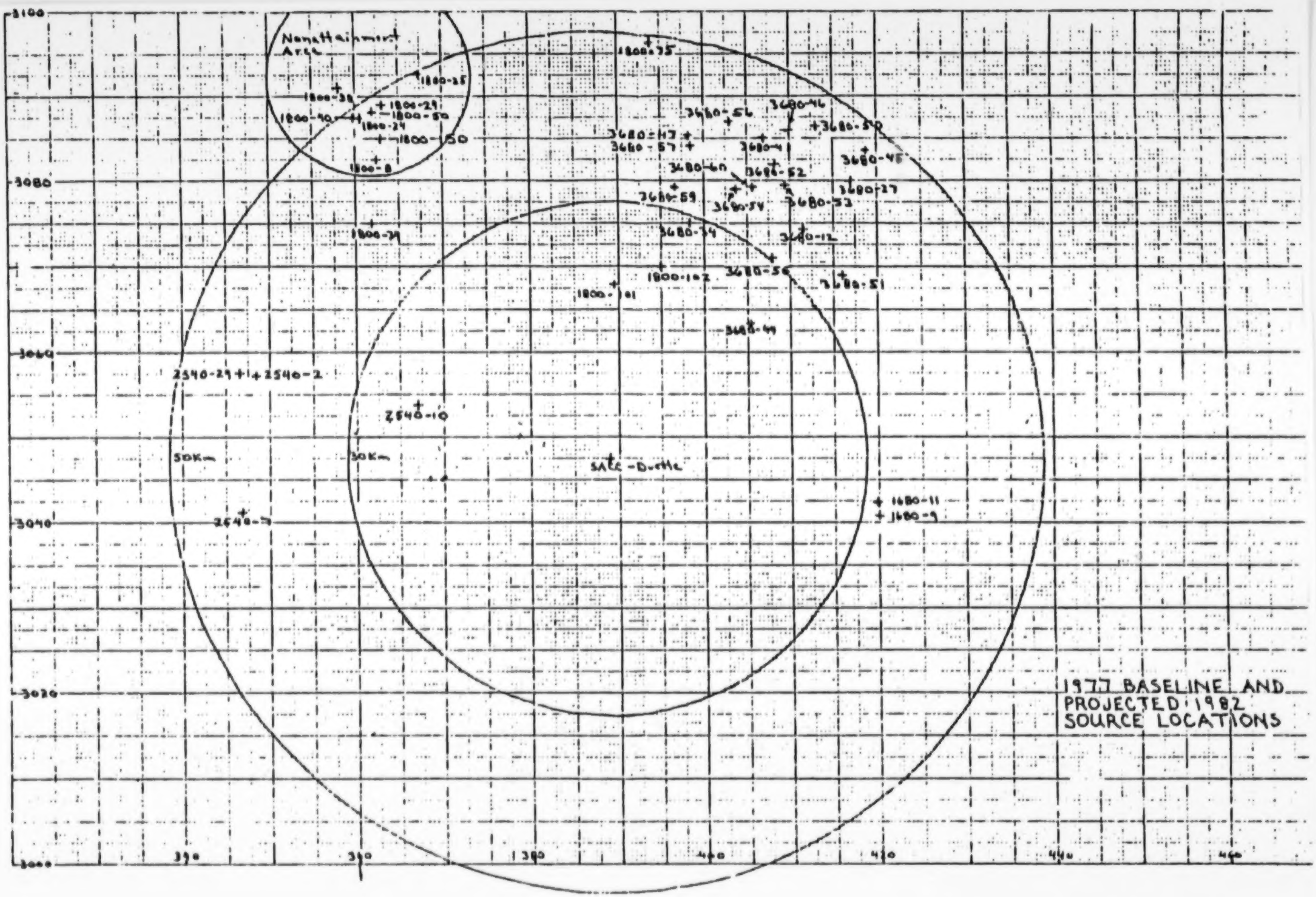
Byron Nelson

Byron E. Nelson
Group Leader
Air Quality Section

Enclosure

cc: J. E. Davis, Swift
R. L. Rhodes, Esq, Holland & Knight
J. F. Schatmeyer, Ph.D., P.E., CCI
H. C. Robertson, CCI
A. Zimmer, EPA-Region IV

BEN/ts


3100
3080
3060
3040
3020
3000
380
400
410
Nonattainment Area
1800-25
1800-38
1800-29
1800-50
1800-90
1800-24
1800-150
1800-8
1800-39
1800-75
3680-47
3660-57
3660-56
3680-46
3680-50
3680-4
3680-45
3680-60
3680-52
3680-27
3660-59
3680-54
3680-53
3680-34
3680-12
3680-56
1800-102
1800-101
3680-51
3680-49
2540-29
2540-2
2540-10
50Km
30Km
SACE-Duette
1680-11
1680-9
2540-7

1977 BASELINE AND
PROJECTED 1982
SOURCE LOCATIONS

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47 1242

SACC Duette Mine
1977 Baseline and Projected 1982
Emissions Inventories

NEDS No. County - Plant	Source Name	Total Baseline 1977 Emissions (TPY)	Total Projected 1982 Emissions (TPY)
1800-8	Gardenier	450	582
1800-24	IMC - Port Sutton	150	150
1800-29	Nitram	55	148
1800-38	TECO - Hookers Point	255	1229
1800-39	TECO - Big Bend	2087	5393
1800-40	TECO - Gannon	1567	5683
1800-50	Chloride	-	77
1800-75	Borden - Plant City	109	109
1800-101	Brewster	102	129
1800-102	Borden - Big Four	-	265
1800-150	S.I. Lime	-	40
3680-12	Swift	97	97
3680-27	IMC - Noralyn	246	246
3680-34	IMC - Kingsford	110	110
3680-44	Gardinier - Ft. Meade	99	99
3680-45	Orange Co. of Florida	93	108
3680-46	W.R. Grace	370	435
3680-47	Mobil	281	272
3680-48	Royster	114	114
3680-50	U.S.S. Agrichem	19	201
3680-51	U.S.S. Agrichem	124	126
3680-52	C F	649	924
3680-53	Farmland	752	838

SACC Duette Mine
1977 Baseline and Projected 1982 Emissions Inventories
(continued)

NEDS No. County - Plant	Source Name	Total Baseline 1977 Emissions (TPY)	Total Projected 1982 Emissions (TPY)
3680-54	Agrico - Pierce	214	214
3680-55	Agrico - S. Pierce	214	452
3680-56	IMC - Prairie	29	97
3680-57	Conserve Chem	350	1180
3680-59	IMC - New Wales	284	1964
3680-60	Electrophos	163	208
2540-2	Borden - Piney Point	94	122
2540-7	Tropicana	110	128
2540-10	FP&L - Willow Creek	4830	6880
2540-29	Manatee Energy	-	29
1680-9	City of Wauchula	70	70
1680-11	American Orange	-	54

CCI

CONSERVATION CONSULTANTS, INC.
POST OFFICE BOX 35 • PALMETTO, FLORIDA 33561
TELEPHONE 813-722-6668
Consultants in Environmental Biology and Engineering

June 4, 1979

Mr. Lewis H. Nagler
U.S. ENVIRONMENTAL PROTECTION AGENCY
Region IV
345 Courtland, N.E.
Atlanta, Georgia 30308

RE: SACC (Swift) Duette Mine EIS.

Dear Mr. Nagler:

Enclosed is a diagram and list of sources that Conservation Consultants, Inc. has determined to consume PSD increment for the referenced project. The chart is marked with 30 km and 50 km rings and the non-attainment area is also designated. We propose to use the above sources to model 24-hour and annual suspended particulate increment consumption within the next few days and would appreciate knowledge of any comment or questions you may have before proceeding.

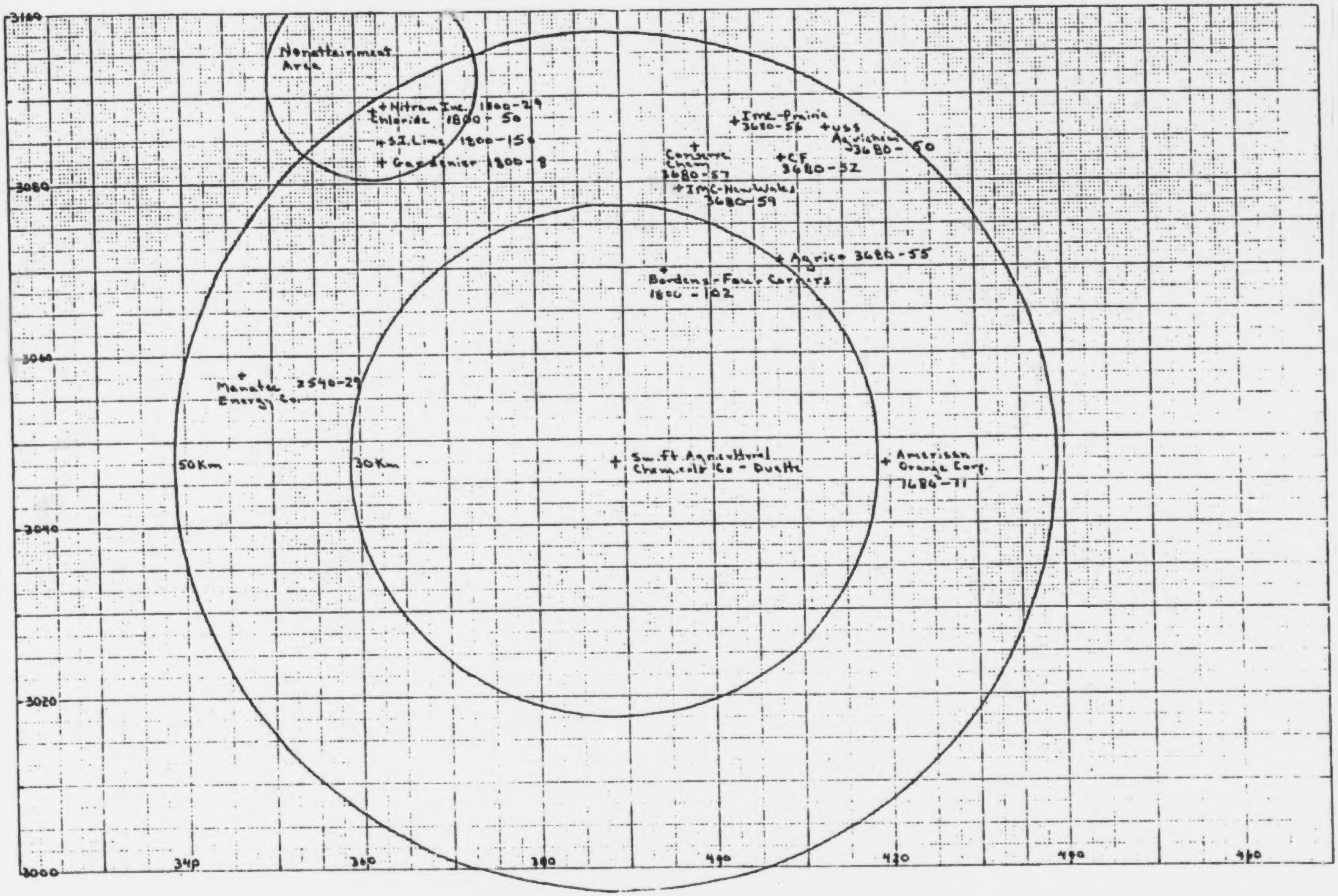
Very truly yours,

Byron E. Nelson

Byron E. Nelson
Group Leader
Air Quality Section

/mc
Enclosures
cc: J. E. Davis, Swift
R. L. Rhodes, Esq., Holland & Knight
J. F. Schatmeyer, Ph.D., P.E., CCI ✓
H. C. Robertson, CCI
A. Zimmer, EPA-Region IV

Reference No. 0200-013


Nonattainment Area
+ Nitram Inc. 1800-29
Chloride 1800-50
+ S.I. Lime 1800-150
+ Gardinier 1800-8
+ IMC-Prairie 3680-56
+ USS Agrichem 3680-50
+ Conserve Chem 3680-57
+ CF 3680-52
+ IMC-New Wales 3680-59
+ Agrico 3680-55
+ Bordens-Four Corners 1800-102
+ Manatee Energy Co. 2540-29
50Km
30Km
+ Swift Agricultural Chemicals Co - Duette
+ American Orange Corp. 1680-71
3100
3080
3060
3040
3020
3000
340
360
380
400
420
440
460
47 1242

SACC INTERACTIVE SOURCE LIST

NEDS No.	Source Name	UTM Coordinates		Ht. (ft)	Diam. (ft)	Temp. °F	Flowrate (ACFM)	Allowed Particulates (lb/hr)	Operational Hours		
									Hours/Day	Days/Week	Weeks/Year
1800-102-1	Borden - Rock Dryer	394.7	3069.6	100	4.0	210	90,000	42.32	24	5	52
1800-102-2	Borden - Dry Rock Storage	394.7	3069.6	27	3.1	75	18,000	42.32	17.3	5	52
1800-102-3	Borden - Dry Rock Shipping	394.7	3069.6	26.5	1.1	70	18,000	50.44	5.8	5	52
1800-50-1	S.I. Lime - Bulk Terminal	362.9	3084.7	60	2.0	95	1,000	31.83	8	6	52
1800-8-44	Gardinier - Ammonia Phosphate Plant	362.9	3082.5	80	3.0	130	20,000	16.2	22	7	52
1800-8-45	Gardinier - Vessel Loading Facility	363.2	3082.3	3	2.3	72	16,000	40.0	24	1.5	52
1800-50-5	Chloride - Lead Oxide Transfer System	361.8	3088.3	40	1.5	125	5,500	12.88	24	5	50
1800-50-6	Chloride - Lead Oxide Kettle	361.8	3088.3	40	1.5	125	5,438	12.88	24	5	50
1800-29-6	Nitram, Inc. - Prill Tower No. 2	363.1	3089.0	200	22.6	90	150,000	27.28	16	7	50
3680-56-5	IMC Prairie - No. 4 Raymond	403.0	3087.0	65	2.0	140	6,300	19.2	24	5	52
3680-57-4	Conserv Chem. - Granulator	398.4	3084.2	211	3.2	180	35,000	30.98	24	7	52
3680-57-4	Conserv Chem. - Dryer	398.4	3084.2	201	3.52	140	44,000	31.41	24	7	52
3680-57-4	Conserv.Chem. - Sizing	398.4	3084.2	172	2.5	150	16,000	31.35	24	7	52
3680-52-15	C.F. - Phosphate Rock Unloader to Silos	408.2	3082.9	45.3	4.5	77	37,000	41.89	24	7	52
3680-55-23	Agrico - GTSP Production	407.9	3071.0	140	9.0	107	156,000	49.6	22	7	52

SACC INTERACTIVE SOURCE LIST (Continued)

NEDS No.	Source Name	UTM Coordinates		Ht. (ft)	Diam. (ft)	Temp. °F	Flowrate (ACFM)	Allowed Particulates (lb/hr)	Operational Hours		
									Hours Day	Days Week	Weeks Year
3680-59-24	New Wales - Bag Collector AFI Shipping	396.7	3079.4	120	8.0	125	110,000	40.41	24	7	48
3680-59-25	New Wales - Limestone Storage	396.7	3079.4	50	1.0	80	4,000	33.33	24	7	48
3680-59-26	New Wales - Silica Storage	396.7	3079.4	18	1.0	77	1,500	14.99	24	7	52
3680-59-27	New Wales - Granulator Plant for AFI	396.7	3079.4	172	8.0	120	130,000	36.8	24	7	48
3680-59-28	New Wales - AFI Silos	396.7	3079.4	116	1.0	77	1,600	36.2	24	7	52
3680-59-29	New Wales - Railroad & Truck Shipping	396.7	3079.4	40	3.0	80	12,000	41.88	24	7	50
3680-59-30	New Wales - Soda Ash Unloading	396.7	3079.4	61	.66	77	1,500	16.76	8	7	50
3680-59-31	New Wales - Soda Ash Conveying	396.7	3079.4	45	1.0	77	1,500	15.00	8	7	50
3680-59-32	New Wales - A Kiln Cooler	396.7	3079.4	87	1.5	325	30,000	15.00	24	5	50
3680-59-33	New Wales - B Kiln Cooler	396.7	3079.4	87	1.5	325	30,000	15.00	24	7	50
3680-59-34	New Wales - Multifos Sizing	396.7	3079.4	17	1.25	225	10,000	23.00	24	7	50
3680-59-35	New Wales - Multifos Class. System	396.7	3079.4	57	1.25	175	6,000	18.44	24	7	50
3680-59-36	New Wales - Dryer & 2 Kilns	396.7	3079.4	172	4.5	100	43,000	18.41	24	7	50
3680-59-37	New Wales - DAP/MAP Loadout	396.7	3079.4	N/A	N/A	80	18,500	38.6	24	7	52
3680-59-38	New Wales - AFI Storage and Loading	396.7	3079.4	65	1.0	85	8,000	40.35	24	7	52

SACC INTERACTIVE SOURCE LIST (Continued)

NEDS No.	Source Name	UTM Coordinates		Ht. (ft)	Diam. (ft)	Temp. °F	Flowrate (ACFM)	Allowed Particulates (lb/hr)	Operational Hours		
									Hours/Day	Days/Week	Weeks/Year
3680-50-38	USS Agri-Chem. - DAP Facility	413.2	3086.3	133	7.0	90	110,000	34.35	24	7	52
3680-50-39	USS Agri-Chem. - DAP/MAP Storage & Loading	413.2	3086.3	74	2.0	80	30,000	43.12	4	7	52
2540-29-1	Manatee Energy - Splitter Boiler	346.6	3057.7	64	2.0	550	5,000	1.25	24	7	50
2540-29-1	Manatee Energy - Splitter Furnace	346.6	3057.7	100	3.0	550	9,100	5.75	24	7	50
1680-11-1	American Orange - Citrus Peel Dehydrator	419.8	3047.3	34.5	10.0	185	27,000	10.12	24	6	28
1680-11-2	American Orange - Citrus Pulp Dehydrator	419.8	3047.3	35.5	13.3	185	45,000	16.52	24	6	28

APPENDIX D

TSP MODELING DATA

METEOROLOGY INPUT

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       1620. 1943. 1843. 1843. 1843. 1943. 1943. 1837. 1830. 1824. 1817. 1810.
HLH2=   533.  533.  533.  533.  533.  575.  733.  892. 1050. 1209. 1367. 1526.
       1694. 1943. 1943. 1943. 1943. 1943. 1943. 1937. 1220.  997.  554.  221.

                                     M A X   H O U R L Y                                  M A X   2 4 - H O U R

      DAY         RATIO     CONCENTRATION  DIRECTION  DISTANCE(KM)  HOUR    CONCENTRATION  DIRECTION  DISTANCE(KM)
      136         7.951     2.295955E-05      2           0.50       11     2.924530E-06      34          0.70

JYR=70 IMO= 5 JDAY=137.
ISTAB=   6    7    6    6    5    4    3    3    3    3    2    2    2    3    3    4    4    4    4    5    6    5    6    6
AWS=   1.0  1.0  2.6  2.1  2.6  2.6  2.6  4.6  5.1  4.1  5.1  3.6  3.6  5.7  4.1  6.7  6.2  5.1  4.6  3.1  2.6  2.1  2.6  2.6
TEMP= 296. 293. 293. 293. 293. 293. 294. 297. 299. 300. 301. 302. 303. 304. 304. 303. 301. 300. 299. 297. 295. 295. 296. 295.
AFV=  180. 180. 270. 270. 300. 300. 290. 340. 340. 310. 310.  10.  70.  80.  80.  80. 100. 130. 120. 130. 110.  90. 110. 160.
AFVR= 195. 179. 270. 271. 296. 305. 291. 339. 337. 310. 311.  12.  74.  79.  83.  85.  98. 134. 120. 127. 115.  94. 107. 161.
HLH1= 1833. 1796. 1790. 1783. 1776.   57.  264.  471.  678.  836. 1093. 1300.
      1530. 1715. 1715. 1715. 1715. 1715. 1715. 1743. 1776. 1808. 1841. 1873.
HLH2=  221.  221.  221.  221.  221.  270.  451.  631.  812.  993. 1173. 1354.
      1534. 1715. 1715. 1715. 1715. 1715. 1715. 1639. 1119.  798.  479.  157.

                                     M A X   H O U R L Y                                  M A X   2 4 - H O U R

      DAY         RATIO     CONCENTRATION  DIRECTION  DISTANCE(KM)  HOUR    CONCENTRATION  DIRECTION  DISTANCE(KM)
      137         8.695     2.305693E-05      1           0.50       12     2.651780E-06       8          0.50

JYR=70 IMO= 5 JDAY=138.
ISTAB=   6    6    7    7    6    5    4    4    3    4    3    3    3    3    4    4    4    4    4    4    4    4    4    4
AWS=   2.6  1.0  1.0  1.0  2.1  2.6  3.1  3.6  2.6  6.2  5.1  5.7  5.7  6.7  6.2  6.7  6.7  7.7  6.2  5.7  6.2  6.2  5.1  4.1
TEMP= 295. 294. 293. 293. 293. 293. 295. 296. 300. 303. 304. 305. 305. 305. 304. 304. 304. 303. 302. 300. 299. 299. 298. 298.
AFV=  170. 170. 170. 170. 240. 290. 250. 270. 290. 280. 270. 270. 280. 280. 290. 280. 270. 280. 270. 270. 270. 270. 270. 280.
AFVR= 166. 173. 174. 172. 237. 276. 253. 268. 293. 295. 271. 271. 278. 282. 295. 295. 276. 277. 271. 273. 271. 266. 266. 284.
HLH1= 1936. 1938. 1971. 2003. 2036.   79.  360.  642.  923. 1204. 1485. 1767.
      2048. 2329. 2329. 2329. 2329. 2329. 2329. 2300. 2267. 2233. 2199. 2165.
HLH2=  157.  157.  157.  157.  157.  231.  473.  755. 1019. 1299. 1542. 1904.
      2047. 2329. 2329. 2329. 2329. 2329. 2329. 2300. 2267. 2233. 2199. 2165.

                                     M A X   H O U R L Y                                  M A X   2 4 - H O U R

      DAY         RATIO     CONCENTRATION  DIRECTION  DISTANCE(KM)  HOUR    CONCENTRATION  DIRECTION  DISTANCE(KM)
      138         4.179     2.164138E-05     29           0.50        9     5.183150E-06      27          0.90

JYR=70 IMO= 5 JDAY=139.
ISTAB=   4    5    5    5    6    5    4    4    4    4    4    3    3    4    4    4    4    4    4    4    4    4    5    4
AWS=   3.6  2.1  3.1  3.1  3.1  3.1  4.1  5.1  6.2  6.2  6.2  4.1  5.1  5.1  6.7  5.1  6.2  7.7  6.2  4.6  4.6  4.6  4.1  3.6
TEMP= 297. 296. 295. 295. 295. 294. 295. 296. 299. 301. 303. 303. 304. 303. 304. 302. 301. 301. 299. 297. 297. 296. 295. 295.
AFV=  270. 250. 260. 260. 260. 250. 250. 270. 290. 290. 270. 290. 300. 260. 230. 240. 250. 260. 270. 250. 250. 260. 250. 260.
AFVR= 269. 249. 264. 261. 259. 252. 253. 272. 286. 292. 275. 277. 298. 261. 228. 244. 248. 262. 275. 250. 252. 265. 248. 265.
HLH1= 2132. 2098. 2064. 2031. 1997.   59.  263.  468.  672.  876. 1090. 1285.
      1689. 1693. 1693. 1693. 1693. 1693. 1693. 1714. 1740. 1765. 1791. 1816.
HLH2= 2132. 1100. 1100. 1100. 1100. 1121. 1192. 1264. 1335. 1407. 1478. 1550.
      1621. 1693. 1693. 1693. 1693. 1693. 1693. 1714. 1740. 1765.  732. 1816.

                                     M A X   H O U R L Y                                  M A X   2 4 - H O U R

      DAY         RATIO     CONCENTRATION  DIRECTION  DISTANCE(KM)  HOUR    CONCENTRATION  DIRECTION  DISTANCE(KM)
      139         7.436     2.076412E-05     30           0.70       13     2.725019E-06      25          1.50

JYR=70 IMO= 5 JDAY=140.
ISTAB=   5    5    6    5    5    4    3    4    4    4    3    2    3    4    3    4    4    4    4    4    4    4    4    5
AWS=   4.1  3.6  3.1  3.6  3.6  3.6  4.1  6.2  6.2  6.2  7.2  4.1  5.1  5.1  4.6  6.2  5.1  6.2  5.1  6.2  6.7  6.7  4.6  4.1
TEMP= 295. 295. 294. 293. 293. 293. 294. 295. 298. 301. 303. 304. 305. 305. 305. 305. 304. 304. 303. 300. 300. 299. 297. 296.
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       119        4.316     3.466645E-05     29          0.50       14      8.031850E-06     29          0.50

JYR=72 IMO= 4 JDAY=120.
ISTAB=  4     5     5     4     4     4     4     4     4     4     4     3     4     4     4     4     4     4     4     4     4     4     4     4
AWS=   4.1   3.1   3.1   5.1   6.2   5.7   3.6   4.6   4.6   3.6   3.1   4.6   5.1   6.2   3.6   3.1   6.7   5.7   5.7   4.6   7.2   5.7   5.1   3.6
TEMP= 293.  293.  290.  293.  293.  293.  292.  293.  293.  294.  290.  298.  298.  300.  300.  300.  298.  296.  295.  294.  294.  293.  293.  293.
AFV=  300.  270.  240.  300.  320.  320.  260.  300.  270.  230.  230.  360.  320.  320.  360.  300.  220.  260.  250.  270.  290.  280.  270.  260.
AFVR= 296.  269.  237.  298.  319.  322.  257.  303.  268.  234.  227.  358.  319.  317.    3.  298.  218.  262.  252.  272.  295.  285.  273.  259.
HLH1= 1822. 1813. 1805. 1796. 1788. 1779. 1770. 1762. 1753. 1744. 1736. 1727.
      1719. 1710. 1710. 1710. 1710. 1710. 1710. 1715. 1720. 1724. 1729. 1734.
HLH2= 1822.  553.  553. 1796. 1788. 1779. 1770. 1762. 1753. 1744. 1736. 1727.
      1719. 1710. 1710. 1710. 1710. 1710. 1710. 1715. 1720. 1724. 1729. 1734.
                                        M A X   H O U R L Y                                   M A X   2 4 - H O U R

       DAY        RATIO     CONCENTRATION  DIRECTION  DISTANCE(KM)  HOUR     CONCENTRATION  DIRECTION  DISTANCE(KM)
       120        8.326     3.843507E-05     30          0.50        16      4.616290E-06     30          0.50

JYR=72 IMO= 4 JDAY=121.
ISTAB=  4     4     4     4     4     4     4     4     3     4     4     4     4     3     4     4     4     4     5     5     5     5     5     5
AWS=   3.6   4.1   4.6   5.1   5.7   5.1   3.1   5.7   5.7   6.2   7.2   7.7   5.7   4.1   5.1   5.1   6.7   7.2   4.1   4.6   4.6   4.1   4.1   4.1
TEMP= 293.  293.  293.  293.  293.  292.  293.  294.  295.  297.  298.  300.  300.  300.  300.  300.  300.  299.  298.  296.  296.  295.  294.  293.
AFV=  260.  270.  260.  270.  280.  280.  270.  280.  290.  310.  280.  280.  310.  270.  280.  240.  280.  280.  280.  300.  280.  260.  280.  260.
AFVR= 260.  272.  264.  275.  281.  285.  266.  281.  294.  312.  281.  278.  313.  272.  282.  240.  276.  281.  281.  300.  278.  260.  277.  260.
HLH1= 1739. 1744. 1748. 1753. 1758. 1763. 1768. 1772. 1777. 1782. 1787. 1791.
      1796. 1801. 1801. 1801. 1801. 1801. 1801. 1817. 1833. 1849. 1865. 1880.
HLH2= 1739. 1744. 1748. 1753. 1758. 1763. 1768. 1772. 1777. 1782. 1787. 1791.
      1796. 1801. 1801. 1801. 1801. 1801. 1796. 1495. 1195.  894.  594.  293.
                                        M A X   H O U R L Y                                   M A X   2 4 - H O U R

       DAY        RATIO     CONCENTRATION  DIRECTION  DISTANCE(KM)  HOUR     CONCENTRATION  DIRECTION  DISTANCE(KM)
       121        4.419     4.232618E-05     27          0.30        14      9.578252E-06     28          0.80

JYR=72 IMO= 5 JDAY=122.
ISTAB=  5     5     5     6     6     5     4     3     3     3     4     3     3     3     4     3     3     4     4     5     5     5     6     5
AWS=   3.6   3.6   3.6   2.6   2.6   3.1   3.6   3.6   5.1   5.7   5.1   5.1   4.1   4.6   6.7   4.1   4.1   4.6   3.6   3.6   3.6   4.1   2.1   2.6
TEMP= 293.  292.  292.  291.  290.  290.  292.  295.  298.  299.  300.  301.  301.  303.  303.  303.  301.  301.  298.  298.  296.  296.  294.  294.
AFV=  250.  250.  250.  260.  220.  230.  230.  280.  270.  280.  270.  250.  230.  220.  230.  220.  210.  230.  250.  250.  250.  270.  270.  260.
AFVR= 252.  255.  248.  258.  224.  226.  233.  276.  273.  284.  272.  246.  226.  222.  226.  220.  215.  231.  254.  248.  246.  266.  274.  258.
HLH1= 1896. 1912. 1928. 1944. 1959.   27.  286.  546.  805. 1065. 1324. 1583.
      1843. 2102. 2102. 2102. 2102. 2102. 2102. 2094. 2086. 2078. 2071. 2063.
HLH2=  293.  293.  293.  293.  293.  316.  539.  763.  986. 1209. 1432. 1656.
      1879. 2102. 2102. 2102. 2102. 2102. 2102. 1763. 1427. 1091.  755.  419.
                                        M A X   H O U R L Y                                   M A X   2 4 - H O U R

       DAY        RATIO     CONCENTRATION  DIRECTION  DISTANCE(KM)  HOUR     CONCENTRATION  DIRECTION  DISTANCE(KM)
       122        6.974     4.499320E-05     22          0.30        16      6.451332E-06     22          0.30

JYR=72 IMO= 5 JDAY=123.
ISTAB=  6     6     5     5     6     5     4     4     3     3     3     3     4     3     4     4     4     4     4     4     4     4     5     5
AWS=   2.6   2.6   3.6   3.6   3.1   2.6   3.1   3.1   4.1   5.1   5.1   5.1   5.1   4.6   5.1   5.7   6.2   5.7   6.2   5.1   4.1   3.6   2.6   3.6
TEMP= 293.  292.  291.  292.  291.  291.  292.  293.  296.  298.  299.  301.  303.  301.  301.  301.  301.  300.  300.  298.  297.  297.  296.  295.
AFV=  240.  240.  230.  230.  240.  230.  260.  220.  240.  300.  220.  270.   90.   80.  100.  100.  130.  160.  160.  180.  190.  280.  270.  270.
AFVR= 241.  242.  231.  231.  238.  231.  257.  220.  241.  302.  223.  270.   86.   77.  104.   96.  128.  161.  156.  176.  188.  281.  266.  266.
HLH1= 2055. 2047. 2039. 2031. 2024.   28.  269.  509.  750.  991. 1231. 1472.
      1712. 1953. 1953. 1953. 1953. 1953. 1953. 1928. 1904. 1879. 1855. 1830.
HLH2=  419.  419.  419.  419.  419.  441.  630.  819. 1008. 1197. 1386. 1575.
      1764. 1953. 1953. 1953. 1953. 1953. 1953. 1928. 1904. 1879.  722.  414.
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ISTAB=  5     4     4     4     4     4     4     4     4     4     4     4     4     4     4     4     4     4     4     4     4     4     4     4
AWS=  5.1   6.2   6.2   6.7   7.2   7.2   6.7   7.7   8.2   7.2   8.7   8.2   8.2   8.2   7.7   7.2   7.2   7.2   5.1   5.1   5.1   4.1   5.1   6.7
TEMP= 299.  299.  299.  299.  299.  299.  300.  300.  301.  301.  301.  302.  303.  303.  303.  303.  302.  301.  301.  300.  300.  300.  300.  300.
AFV=   70.   60.   80.   70.   90.   80.   80.   90.   80.   80.   90.   90.   90.   90.   90.   90.   90.   90.   90.   90.   90.   90.   90.   90.
AFVR=  67.   62.   85.   71.   88.   84.   83.   94.   83.   79.   93.   90.   93.   91.   95.   94.   90.   87.   93.   87.   89.   92.   94.   88.
HLH1=  980.  948.  916.  885.  853.  822.  790.  758.  727.  695.  664.  632.
       601.  569.  569.  569.  569.  569.  569.  592.  630.  669.  708.  746.
HLH2= 1174.  948.  916.  885.  853.  822.  790.  758.  727.  695.  664.  632.
       601.  569.  569.  569.  569.  569.  569.  592.  630.  669.  708.  746.

                                           M A X   H O U R L Y                              M A X   2 4 - H O U R

        DAY        RATIO    CONCENTRATION  DIRECTION  DISTANCE(KM)  HOUR    CONCENTRATION  DIRECTION  DISTANCE(KM)
        173        1.767    2.809287E-05       9          0.80       17     1.635223E-05       9          0.80

JYR=72 IMO= 6 JDAY=174.
ISTAB=  4     4     4     4     4     4     4     4     4     4     4     4     4     3     4     4     4     4     4     4     4     4     4     4
AWS=  5.7   5.1   6.2   6.2   6.2   6.2   4.6   5.1   6.2   6.2   6.7   6.7   7.2   7.2   8.2   7.7   7.2   7.7   6.7   5.7   6.2   5.1   5.1   5.1
TEMP= 300.  300.  300.  300.  300.  300.  300.  300.  301.  301.  302.  303.  303.  303.  303.  303.  302.  302.  301.  300.  300.  300.  300.  300.
AFV=   80.   80.   90.   90.   90.   90.   90.   90.   90.   90.  100.  100.  100.  100.   90.  100.   90.   90.   90.   90.   90.   90.   80.   80.
AFVR=  85.   82.   87.   93.   90.   88.   92.   95.   87.   92.  102.   99.  104.  100.   88.  103.   92.   91.   94.   93.   88.   91.   81.   78.
HLH1=  785.  823.  862.  901.  939.  978. 1017. 1055. 1094. 1132. 1171. 1210.
      1248. 1287. 1287. 1287. 1287. 1287. 1287. 1292. 1300. 1308. 1316. 1324.
HLH2=  785.  823.  862.  901.  939.  978. 1017. 1055. 1094. 1132. 1171. 1210.
      1248. 1287. 1287. 1287. 1287. 1287. 1287. 1292. 1300. 1308. 1316. 1324.

                                           M A X   H O U R L Y                              M A X   2 4 - H O U R

        DAY        RATIO    CONCENTRATION  DIRECTION  DISTANCE(KM)  HOUR    CONCENTRATION  DIRECTION  DISTANCE(KM)
        174        2.311    3.614677E-05      10          0.50       14     1.564334E-05       9          0.80

JYR=72 IMO= 6 JDAY=175.
ISTAB=  4     4     4     4     4     4     4     4     4     4     4     4     3     3     4     4     4     4     4     5     5     5     4     4
AWS=  5.1   5.7   7.2   7.7   7.2   5.7   7.2   7.7   4.1   3.1   7.7   6.7   6.2   7.2   6.2   6.2   5.7   5.1   4.6   4.1   4.1   5.1   5.1   6.2
TEMP= 300.  300.  300.  300.  300.  300.  300.  300.  299.  302.  302.  303.  303.  304.  303.  303.  303.  302.  301.  300.  300.  300.  300.  300.
AFV=   90.   90.   90.   90.   90.   90.  100.   90.  110.   90.  100.  100.   90.   90.   90.  100.   90.   90.   90.   80.   80.   90.   80.   90.
AFVR=  94.   88.   92.   91.   93.   87.  105.   92.  106.   94.   98.   96.   87.   94.   89.   96.   88.   89.   86.   79.   81.   88.   76.   93.
HLH1= 1332. 1340. 1348. 1356. 1364. 1372. 1380. 1388. 1396. 1404. 1412. 1420.
      1428. 1436. 1436. 1436. 1436. 1436. 1436. 1421. 1396. 1370. 1345. 1319.
HLH2= 1332. 1340. 1348. 1356. 1364. 1372. 1380. 1388. 1396. 1404. 1412. 1420.
      1428. 1436. 1436. 1436. 1436. 1436. 1436. 1427. 1413. 1398. 1345. 1319.

                                           M A X   H O U R L Y                              M A X   2 4 - H O U R

        DAY        RATIO    CONCENTRATION  DIRECTION  DISTANCE(KM)  HOUR    CONCENTRATION  DIRECTION  DISTANCE(KM)
        175        2.069    3.300743E-05       9          0.50       13     1.595348E-05       9          0.50

JYR=72 IMO= 6 JDAY=176.
ISTAB=  4     4     4     4     4     4     4     4     4     3     3     3     3     3     4     4     4     4     4     5     6     6     6     5
AWS=  5.7   4.6   5.1   6.2   6.2   6.7   5.1   5.1   5.7   5.1   5.7   5.7   5.7   7.2   6.7   7.2   5.1   3.1   5.1   3.1   2.1   2.1   3.1   4.1
TEMP= 300.  300.  300.  300.  300.  299.  300.  300.  301.  301.  302.  302.  302.  303.  303.  302.  299.  298.  299.  299.  299.  299.  299.  299.
AFV=   90.   70.   80.   70.   90.   90.   90.   90.  100.   90.  100.  100.  100.   90.   90.   90.   60.   80.   90.   90.   60.   50.   50.   50.
AFVR=  93.   68.   77.   69.   87.   86.   89.   86.  100.   94.   56.   96.  104.   89.   86.   86.   58.   82.   86.   89.   65.   52.   51.   52.
HLH1= 1294. 1269. 1243. 1217. 1192. 1166. 1141. 1115. 1090. 1064. 1039. 1013.
       988.  962.  962.  962.  962.  962.  962.  971.  988. 1004. 1020. 1037.
HLH2= 1294. 1268. 1243. 1217. 1192. 1166. 1141. 1115. 1090. 1064. 1039. 1013.
       988.  962.  962.  962.  962.  962.  962. 1024. 1130. 1237. 1343. 1450.

                                           M A X   H O U R L Y                              M A X   2 4 - H O U R

        DAY        RATIO    CONCENTRATION  DIRECTION  DISTANCE(KM)  HOUR    CONCENTRATION  DIRECTION  DISTANCE(KM)
        176        3.095    3.531094E-05       9          0.50       14     1.140874E-05       9          0.50
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AFVR= 312. 321. 320. 334. 329. 332. 337. 342.  38.   4.  58.  33.  27.  87. 139.   4. 199. 198. 293. 137. 180. 179. 211. 293.
HLH1= 1310. 1277. 1243. 1209. 1175. 1141. 1107. 1073. 1039. 1005.  971.  937.
       903.  869.  869.  869.  869.  867.  833.  799.  765.  731.  697.  663.
HLH2= 1310. 1277. 1243. 1209. 1175. 1141. 1107. 1073. 1039. 1005.  971.  937.
       903.  869.  869.  869.  869.  900.  815.  763.  711.  659.  608.  556.

                                     M A X   H O U R L Y                                       M A X   2 4 - H O U R

        DAY        RATIO     CONCENTRATION  DIRECTION  DISTANCE(KM)  HOUR    CONCENTRATION  DIRECTION  DISTANCE(KM)
         22        11.530     3.485641E-05     15          0.50       17      3.023074E-06     32          0.50


JYR=73 IMO= 1 JDAY= 23.
ISTAB=   4    5    5    5    4    4    4    4    4    4    4    4    4    4    4    4    4    4    4    4    4    4    4    4
AWS=   3.6  2.6  3.1  3.6  3.6  3.1  6.7  5.1  4.1  6.2  5.1  5.1  6.2  3.6  2.1  2.6  3.1  3.1  2.6  3.1  3.6  4.1  3.6  2.6
TEMP= 289. 289. 289. 289. 289. 298. 286. 285. 285. 295. 286. 286. 288. 288. 289. 289. 289. 289. 289. 289. 289. 289. 289. 289.
AFV=  200. 230. 240. 250. 230. 240. 250. 220. 240. 210. 233. 210. 240. 290. 240. 230. 260. 190. 230. 200. 280. 210. 210. 270.
AFVR= 200. 227. 240. 250. 229. 241. 249. 217. 245. 209. 226. 214. 240. 289. 240. 233. 262. 195. 204. 201. 277. 207. 207. 270.
HLH1=  629.  595.  561.  527.  493.  459.  425.  391.  357.  323.  289.  255.
       221.  187.  187.  187.  187.  188.  219.  249.  280.  310.  340.  371.
HLH2=  629.  556.  556.  527.  493.  459.  425.  391.  337.  323.  289.  255.
       221.  187.  187.  187.  137.  188.  219.  249.  280.  310.  340.  371.
                                     M A X   H O U R L Y                                       M A X   2 4 - H O U R

        DAY        RATIO     CONCENTRATION  DIRECTION  DISTANCE(KM)  HOUR    CONCENTRATION  DIRECTION  DISTANCE(KM)
         23        6.802      3.131572E-05     27          0.70       24      4.559811E-06     24          0.70


JYR=73 IMO= 1 JDAY= 24.
ISTAB=   4    4    4    4    4    4    4    4    4    4    3    4    4    4    4    4    4    4    5    4    5    6    5    5    6
AWS=   1.0  2.1  2.6  1.5  2.5  3.1  3.1  2.1  3.1  4.1  4.6  5.1  5.1  4.6  3.6  3.1  2.1  2.6  4.1  3.1  1.5  2.6  3.1  2.6
TEMP= 289. 289. 289. 289. 289. 289. 289. 288. 290. 292. 294. 294. 294. 296. 295. 294. 294. 292. 290. 289. 287. 286. 286. 286.
AFV=  270. 250. 200. 260. 210. 180. 210. 190. 200. 200. 210. 200. 200. 210. 220. 200. 180. 150. 160. 170. 180. 190. 190. 180.
AFVR= 266. 249. 197. 258. 209. 182. 207. 193. 198. 204. 207. 198. 199. 207. 223. 198. 178. 152. 162. 172. 185. 195. 193. 179.
HLH1=  401.  431.  462.  492.  523.  553.  584.  614.  645.  675.  706.  736.
       767.  797.  797.  797.  797.  797.  796.  795.  794.  793.  792.  791.
HLH2=  401.  431.  462.  492.  523.  553.  584.  614.  645.  675.  706.  736.
       767.  797.  797.  797.  777.  795.  796.  626.  541.  457.  372.  288.
                                     M A X   H O U R L Y                                       M A X   2 4 - H O U R

        DAY        RATIO     CONCENTRATION  DIRECTION  DISTANCE(KM)  HOUR    CONCENTRATION  DIRECTION  DISTANCE(KM)
         24        4.288      3.468849E-05     18          0.70       17      8.089862E-06     20          0.50


JYR=73 IMO= 1 JDAY= 25.
ISTAB=   6    5    5    5    5    6    6    5    4    3    3    3    3    4    4    4    4    4    5    4    4    4    4    4
AWS=   2.1  2.6  3.6  4.1  5.1  3.1  3.1  2.1  3.1  4.1  5.1  5.1  5.1  7.2  5.7  5.1  5.1  3.6  3.1  4.1  3.6  4.6  5.1  5.1
TEMP= 285. 285. 285. 284. 284. 283. 282. 281. 285. 286. 290. 291. 293. 296. 295. 295. 295. 293. 292. 291. 290. 290. 290. 290.
AFV=  180. 190. 200. 223. 220. 240. 253. 250. 220. 250. 250. 250. 270. 280. 240. 270. 260. 250. 260. 260. 260. 270. 270. 280.
AFVR= 180. 192. 204. 225. 221. 245. 246. 251. 224. 252. 251. 248. 273. 282. 292. 270. 256. 251. 261. 260. 258. 270. 267. 280.
HLH1=  720.  789.  788.  787.  786.  785.  784.   70.  188.  306.  423.  541.
       659.  777.  777.  777.  777.  777.  795.  813.  831.  848.  866.  884.
HLH2=  288.  288.  288.  288.  288.  288.  288.  332.  406.  480.  555.  629.
       703.  777.  777.  777.  777.  777.  689.  813.  831.  848.  866.  884.

                                     M A X   H O U R L Y                                       M A X   2 4 - H O U R

        DAY        RATIO     CONCENTRATION  DIRECTION  DISTANCE(KM)  HOUR    CONCENTRATION  DIRECTION  DISTANCE(KM)
         25        5.891      3.282483E-05     25          0.50       18      5.572461E-06     25          0.50


JYR=73 IMO= 1 JDAY= 26.
ISTAB=   5    5    5    5    6    5    4    4    4    4    4    4    3    4    4    4    4    4    4    4    4    4    4    4
AWS=   5.1  5.1  4.6  5.1  3.1  3.1  5.1  4.6  5.7  5.1  6.7  6.2  5.7  6.2  5.7  3.6  3.6  3.6  4.6  4.6  3.6  3.1  3.6  3.6
TEMP= 290. 290. 290. 290. 290. 289. 290. 290. 293. 294. 295. 298. 298. 299. 299. 298. 296. 295. 296. 296. 293. 293. 293. 293.
AFV=  280. 290. 300. 290. 290. 270. 300. 300. 300. 330. 310. 320. 340. 330. 360.  10.  20.  20. 360. 350.  70. 350. 350. 360.
AFVR= 282. 295. 298. 283. 294. 266. 301. 295. 303. 304. 312. 316. 336. 312. 356.  10.  25.  21.   4. 348.  66. 346. 354. 358.
HLH1=  902.  919.  937.  955.  973.  991. 1008. 1026. 1044. 1062. 1080. 1097.
      1115. 1133. 1133. 1133. 1133. 1133. 1109. 1086. 1062. 1039. 1015.  992.
HLH2=  254.  254.  254.  254.  254.  254. 1038. 1026. 1044. 1062. 1080. 1097.
      1115. 1133. 1133. 1133. 1133. 1133. 1109. 1086. 1062. 1039. 1015.  992.
                                     M A X   H O U R L Y                                       M A X   2 4 - H O U R

        DAY        RATIO     CONCENTRATION  DIRECTION  DISTANCE(KM)  HOUR    CONCENTRATION  DIRECTION  DISTANCE(KM)
```

```
                                   141. 140. 142. 154. 144. 113. 138. 161. 132. 130. 151. 111. 124. 123. 138. 145. 140. 145. 243. 244.
 HLH1=  869.  924.  979. 1034. 1090. 1145.  103.  315.  527.  739.  951. 1163.
       1375. 1587. 1587. 1587. 1587. 1587. 1588. 1591. 1594. 1597. 1600. 1604.
 HLH2=  869.  924. 1206. 1266. 1266. 1266. 1287. 1330. 1373. 1415. 1458. 1501.
       1544. 1587. 1587. 1587. 1587. 1587. 1588. 1591.  946.  671.  395.  120.

                                           M A X   H O U R L Y                               M A X   2 4 - H O U R

           DAY         RATIO     CONCENTRATION  DIRECTION  DISTANCE(KM)  HOUR     CONCENTRATION  DIRECTION  DISTANCE(KM)
            86         7.121      3.141249E-05     11           0.50      16       4.411521E-06     14          2.00

 JYR=73 IMO= 3 JDAY= 87.
 ISTAB=   6     7     6     5     6     5     4     3     4     4     3     3     3     3     4     3     4     4     5     4     4     4     4     4
 AWS=   2.6   1.5   2.6   2.6   1.5   2.6   2.6   2.6   6.2   6.7   5.1   6.7   5.7   5.7   3.1   5.7   5.7   5.1   3.1   6.7   6.2   7.2   6.2   6.7
 TEMP= 286.  286.  286.  286.  286.  285.  286.  290.  293.  294.  296.  298.  298.  298.  299.  299.  299.  298.  297.  296.  295.  294.  293.  293.
 AFV=  260.  300.  260.  160.  240.  260.  270.  240.  300.  270.  300.  310.  330.  330.  270.  280.  280.  290.  290.  280.  280.  310.  310.  310.
 AFVR= 260.  301.  265.  161.  240.  262.  271.  245.  301.  274.  296.  313.  334.  332.  272.  283.  278.  289.  295.  277.  283.  309.  306.  312.
 HLH1= 1607. 1610. 1613. 1616. 1619. 1622.  111.  330.  550.  769.  989. 1208.
       1428. 1647. 1647. 1647. 1647. 1647. 1637. 1604. 1572. 1539. 1507. 1475.
 HLH2=  120.  120.  120.  120.  120.  120.  223.  426.  630.  833. 1037. 1240.
       1444. 1647. 1647. 1647. 1647. 1647. 1606. 1604. 1572. 1539. 1507. 1475.

                                           M A X   H O U R L Y                               M A X   2 4 - H O U R

           DAY         RATIO     CONCENTRATION  DIRECTION  DISTANCE(KM)  HOUR     CONCENTRATION  DIRECTION  DISTANCE(KM)
            87         7.721      4.043083E-05     27           0.50      15       5.237709E-06     28          0.50

 JYR=73 IMO= 3 JDAY= 88.
 ISTAB=   4     4     4     4     4     4     4     4     4     4     4     4     4     4     4     4     4     4     4     4     4     4     4     4
 AWS=   4.6   4.1   4.6   4.1   5.1   4.1   3.6   4.1   3.6   6.2   6.2   6.2   6.7   6.7   6.7   7.2   6.2   5.1   3.6   4.1   4.6   6.2   5.1   5.7
 TEMP= 293.  293.  293.  292.  292.  291.  291.  292.  292.  292.  293.  294.  295.  295.  297.  298.  298.  298.  298.  298.  297.  296.  296.  295.
 AFV=  320.  310.  310.  310.  310.  300.  300.  260.  270.  260.  290.  290.  300.  310.  300.  310.  320.  320.  320.  320.  300.  310.  310.  320.
 AFVR= 319.  314.  306.  307.  311.  298.  296.  257.  270.  261.  291.  294.  299.  306.  297.  308.  322.  317.  317.  319.  296.  315.  315.  321.
 HLH1= 1442. 1410. 1378. 1345. 1313. 1280. 1248. 1216. 1183. 1151. 1118. 1086.
       1053. 1021. 1021. 1021. 1021. 1021. 1030. 1059. 1089. 1118. 1147. 1177.
 HLH2= 1442. 1410. 1378. 1345. 1313. 1280. 1248. 1216. 1183. 1151. 1118. 1086.
       1053. 1021. 1021. 1021. 1021. 1021. 1030. 1059. 1089. 1118. 1147. 1177.

                                           M A X   H O U R L Y                               M A X   2 4 - H O U R

           DAY         RATIO     CONCENTRATION  DIRECTION  DISTANCE(KM)  HOUR     CONCENTRATION  DIRECTION  DISTANCE(KM)
            88         3.918      3.623738E-05     32           0.50      20       9.249229E-06     32          0.50

 JYR=73 IMO= 3 JDAY= 89.
 ISTAB=   4     4     5     5     6     5     4     3     4     4     4     4     4     4     4     4     4     4     4     5     4     4     4     4
 AWS=   5.7   5.1   3.1   2.6   3.1   3.6   4.1   4.6   7.2   6.7   5.1   5.1   5.7   6.2   5.1   6.2   6.2   5.1   4.1   2.6   5.1   6.2   6.7   6.7
 TEMP= 295.  294.  294.  293.  293.  293.  293.  294.  296.  297.  299.  300.  301.  302.  302.  301.  301.  300.  300.  298.  298.  298.  296.  296.
 AFV=  330.  320.  320.  320.  290.  250.  330.  300.  310.  330.  330.  340.  330.  310.  320.  330.  320.  310.  360.   20.  320.  300.  320.  310.
 AFVR= 335.  319.  320.  321.  286.  295.  301.  299.  307.  330.  331.  342.  334.  309.  323.  335.  318.  314.  360.   17.  325.  304.  317.  311.
 HLH1= 1206. 1235. 1264. 1294. 1323. 1352.  114.  325.  535.  745.  956. 1166.
       1377. 1587. 1587. 1587. 1587. 1587. 1579. 1553. 1528. 1502. 1476. 1450.
 HLH2= 1206. 1235.  444.  444.  444.  444.  526.  678.  829.  981. 1132. 1284.
       1435. 1587. 1587. 1587. 1587. 1587. 1579. 1555. 1528. 1502. 1476. 1450.

                                           M A X   H O U R L Y                               M A X   2 4 - H O U R

           DAY         RATIO     CONCENTRATION  DIRECTION  DISTANCE(KM)  HOUR     CONCENTRATION  DIRECTION  DISTANCE(KM)
            89         6.542      3.993342E-05     30           0.50      19       6.105276E-06     32          0.50
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PTMTP-W INPUT/OUTPUT

All input data [illegible] except rec 24
Add'l run needed [illegible]
rec 24 and some other
receptors

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DETERMINATION OF MAX PT FOR AAQS JYR72 JDAY175 ADJ THROUGH FP&L

      0.

* * * S O U R C E S * * *
      NO     Q (G/SEC)  HP (M) TS (DEG-K)  VS (M/SEC) D(M) VF(M**3/SEC)  R (KM)    S (KM)

      1.       2.89      18.3      342.6      15.0      2.85          0.0  388.950  3047.280
      2.       1.10      38.1      311.5      30.0      1.02          0.0  388.720  3047.320
      3.       0.73      18.3      309.9      30.0      0.82          0.0  388.730  3047.180
      4.       0.01      12.2      505.4       7.6      0.31          0.0  389.180  3047.630
      5.       1.43      30.4      325.0      10.9      2.40          0.0  362.900  3082.500
      6.       2.04      24.4      328.0      14.3      0.90          0.0  362.900  3082.500
      7.       5.04       0.9      305.0      19.6      0.70          0.0  363.200  3082.300
      8.       2.85      19.8      349.0      11.3      2.40          0.0  360.100  3087.500
      9.      15.22      85.3      432.0      18.5      3.40          0.0  358.000  3091.000
     10.      10.36      85.3      443.0       7.4      3.70          0.0  358.000  3091.000
     11.       9.82      85.3      436.0      17.5      2.90          0.0  358.000  3091.000
     12.     103.37     149.3      422.0      28.7      7.30          0.0  361.900  3075.000
     13.      51.89     149.3      422.0      14.3      7.30          0.0  361.900  3075.000
     14.      18.05      93.3      427.0      24.8      3.00          0.0  360.000  3087.500
     15.      15.85      93.3      427.0      24.8      3.00          0.0  360.000  3087.500
     16.      20.17      93.3      403.0      27.5      3.20          0.0  360.000  3087.500
     17.      25.75      93.3      414.0      18.6      2.90          0.0  360.000  3087.500
     18.      28.81      93.3      415.0      21.1      4.40          0.0  360.000  3087.500
     19.      54.99      93.3      418.0      23.1      5.40          0.0  360.000  3087.500
     20.       3.25      12.2      325.0      15.7      0.50          0.0  361.800  3088.300
     21.       1.77      61.0      337.0      10.3      2.40          0.0  348.500  3057.300
     22.       2.64      29.0      333.0      20.0      0.90          0.0  346.800  3041.100
     23.       1.62      21.4      563.0      11.9      1.90          0.0  346.800  3041.100
     24.      99.04     152.1      425.0      20.7      7.90          0.0  367.100  3053.800
     25.      99.04     152.1      425.0      20.7      7.90          0.0  367.100  3053.800

* * * R E C E P T O R S * * *
      NO.    RREC(KM)  SREC(KM)     Z (M)

      1.    389.000  3047.200        0.0
      2.    389.000  3047.100        0.0
      3.    389.100  3047.200        0.0
      4.    389.100  3047.100        0.0
      5.    389.200  3047.200        0.0
      6.    389.200  3047.100        0.0
      7.    389.300  3047.200        0.0
      8.    389.300  3047.100        0.0
      9.    389.300  3047.000        0.0
     10.    389.400  3047.100        0.0
     11.    389.400  3047.000        0.0
     12.    389.500  3047.100        0.0
     13.    389.500  3047.000        0.0
     14.    389.600  3047.100        0.0
     15.    389.600  3047.000        0.0
     16.    389.700  3047.100        0.0
     17.    389.700  3047.000        0.0
     18.    389.700  3046.900        0.0
     19.    389.800  3047.000        0.0
     20.    389.800  3046.900        0.0
     21.    389.900  3047.000        0.0
     22.    389.900  3046.900        0.0
     23.    390.000  3047.000        0.0
   X 24.    390.000  3046.000 3046.9 0.0
     25.    390.100  3046.900        0.0
     26.    390.100  3046.800        0.0
     27.    390.200  3046.900        0.0
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1-1

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   28.   390.200  3046.800          0.0
   29.   390.300  3046.900          0.0
   30.   390.300  3046.800          0.0

* * * M E T E O R O L O G Y * * *
      NO.  THETA(DEG)    U (M/SEC)  KST     HL (M)   T (DEG-K)   P (MB)

       1.     289.         5.1       4      1332.     300.0      1013.0

* * * R E C E P T O R   N U M B E R * * *
             1.         2.         3.         4.         5.         6.         7.         8.         9.        10.        11.        12.

SOURCE       PARTIAL CONCENTRATIONS (G/M**3)
     1.   0.0        0.0        2.553E-23  1.050E-30  1.349E-12  1.624E-14  8.768E-10  1.550E-09  2.309E-13  1.247E-07  1.918E-09  6.987E-07
     2.   1.496E-07  1.102E-11  1.418E-06  6.151E-08  1.724E-06  1.687E-06  1.081E-06  5.497E-06  3.149E-07  6.949E-06  2.249E-06  5.588E-06
     3.   2.134E-12  1.658E-05  8.720E-12  6.939E-06  1.364E-11  1.943E-06  1.501E-11  5.694E-07  2.062E-05  1.880E-07  1.189E-05  7.038E-08
     4.   0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
     5.   0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
     6.   0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
     7.   0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
     8.   0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
     9.   0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
    10.   0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
    11.   0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
    12.   0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
    13.   0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
    14.   0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
    15.   0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
    16.   0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
    17.   0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
    18.   0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
    19.   0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
    20.   0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
    21.   1.765E-08  1.940E-08  1.715E-08  1.886E-08  1.667E-08  1.834E-08  1.620E-08  1.783E-08  1.958E-08  1.734E-08  1.904E-08  1.686E-08
    22.   0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
    23.   0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
    24.   2.051E-06  2.186E-06  2.011E-06  2.147E-06  1.970E-06  2.107E-06  1.928E-06  2.067E-06  2.200E-06  2.027E-06  2.161E-06  1.986E-06
    25.   2.051E-06  2.186E-06  2.011E-06  2.147E-06  1.970E-06  2.107E-06  1.928E-06  2.067E-06  2.200E-06  2.027E-06  2.161E-06  1.986E-06

          TOTAL CONCENTRATION (G/M**3)

          4.270E-06  2.097E-05  5.457E-06  1.131E-05  5.680E-06  7.862E-06  4.955E-06  1.022E-05  2.535E-05  1.133E-05  1.848E-05  1.035E-05

* * * R E C E P T O R   N U M B E R * * *
            13.        14.        15.        16.        17.        18.        19.        20.        21.        22.        23.        24.

SOURCE       PARTIAL CONCENTRATIONS (G/M**3)
     1.   1.501E-07  1.228E-06  1.288E-06  1.247E-06  3.554E-06  5.962E-07  5.233E-06  2.526E-06  5.391E-06  5.469E-06  4.325E-06  1.243E-24
     2.   5.629E-06  3.611E-06  7.817E-06  2.101E-06  7.687E-06  4.360E-06  6.155E-06  6.327E-06  4.392E-06  7.067E-06  2.931E-06  4.339E-19
     3.   5.712E-06  2.946E-08  2.606E-06  1.351E-08  1.190E-06  9.485E-06  5.629E-07  5.956E-06  2.768E-07  3.529E-06  1.418E-07  7.520E-16
     4.   0.0        1.489E-24  0.0        3.847E-18  9.812E-24  0.0        1.703E-18  2.722E-23  4.641E-15  8.053E-19  9.454E-13  0.0
     5.   0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
     6.   0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
     7.   0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
     8.   0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
     9.   0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
    10.   0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
    11.   0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
    12.   0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
    13.   0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
    14.   0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
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AVERAGE CONCENTRATIONS FOR  24 HOURS.
***RECEPTOR  NUMBER***

              1.         2.         3.         4.         5.         6.         7.         8.         9.         10.        11.        12.

SOURCE     PARTIAL CONCENTRATIONS (G/M**3)

     1.    1.229E-32 0.0       4.685E-10 2.339E-14 1.393E-07 7.082E-09 5.403E-07 2.772E-07 8.223E-09 1.198E-06 2.069E-07 3.420E-06
     2.    3.600E-07 1.408E-08 1.403E-06 3.122E-07 2.267E-06 1.135E-06 2.392E-06 2.605E-06 7.613E-07 3.669E-06 1.380E-06 3.926E-06
     3.    4.153E-07 1.178E-05 7.166E-07 1.057E-05 8.070E-07 6.585E-06 7.955E-07 4.066E-06 1.047E-05 2.793E-06 9.012E-06 2.164E-06
     4.    0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       3.380E-20
     5.    1.387E-26 1.001E-26 2.054E-26 1.485E-26 3.034E-26 2.197E-26 4.463E-26 3.237E-26 2.349E-26 4.758E-26 3.459E-26 6.969E-26
     6.    2.256E-26 1.628E-26 3.341E-26 2.415E-26 4.935E-26 3.574E-26 7.257E-26 5.264E-26 3.820E-26 7.738E-26 5.624E-26 1.133E-25
     7.    7.452E-26 5.357E-26 1.111E-25 8.001E-26 1.653E-25 1.192E-25 2.447E-25 1.768E-25 1.278E-25 2.616E-25 1.894E-25 3.858E-25
     8.    2.375E-28 1.745E-28 3.477E-28 2.559E-28 5.080E-28 3.743E-28 7.394E-28 5.456E-28 4.027E-28 7.937E-28 5.867E-28 1.151E-27
     9.    5.470E-29 4.074E-29 7.910E-29 5.899E-29 1.142E-28 8.528E-29 1.643E-28 1.228E-28 9.188E-29 1.767E-28 1.323E-28 2.535E-28
    10.    3.956E-29 2.947E-29 5.721E-29 4.266E-29 8.260E-29 6.167E-29 1.188E-28 8.882E-29 6.643E-29 1.277E-28 9.565E-29 1.832E-28
    11.    3.656E-29 2.723E-29 5.286E-29 3.942E-29 7.632E-29 5.699E-29 1.098E-28 8.209E-29 6.139E-29 1.181E-28 8.840E-29 1.694E-28
    12.    1.152E-14 9.357E-15 1.500E-14 1.180E-14 1.884E-14 1.484E-14 2.358E-14 1.862E-14 1.469E-14 2.331E-14 1.843E-14 2.911E-14
    13.    9.571E-15 7.512E-15 1.203E-14 9.457E-15 1.508E-14 1.188E-14 1.886E-14 1.488E-14 1.174E-14 1.861E-14 1.471E-14 2.320E-14
    14.    1.245E-27 9.167E-28 1.818E-27 1.340E-27 2.650E-27 1.956E-27 3.848E-27 2.844E-27 2.103E-27 4.127E-27 3.055E-27 5.971E-27
    15.    1.093E-27 8.046E-28 1.596E-27 1.177E-27 2.326E-27 1.717E-27 3.377E-27 2.496E-27 1.846E-27 3.622E-27 2.681E-27 5.241E-27
    16.    1.376E-27 1.013E-27 2.009E-27 1.481E-27 2.928E-27 2.161E-27 4.251E-27 3.142E-27 2.323E-27 4.559E-27 3.375E-27 6.597E-27
    17.    1.860E-27 1.369E-27 2.715E-27 2.001E-27 3.957E-27 2.920E-27 5.745E-27 4.246E-27 3.139E-27 6.160E-27 4.560E-27 8.913E-27
    18.    1.817E-27 1.337E-27 2.653E-27 1.956E-27 3.868E-27 2.855E-27 5.616E-27 4.152E-27 3.070E-27 6.025E-27 4.461E-27 8.720E-27
    19.    3.002E-27 2.211E-27 4.387E-27 3.234E-27 6.396E-27 4.722E-27 9.291E-27 6.869E-27 5.079E-27 9.971E-27 7.383E-27 1.443E-26
    20.    0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
    21.    4.055E-08 4.046E-08 4.043E-08 4.035E-08 4.030E-08 4.024E-08 4.018E-08 4.012E-08 4.003E-08 4.001E-08 3.992E-08 3.989E-08
    22.    1.529E-11 1.836E-11 1.559E-11 1.871E-11 1.590E-11 1.906E-11 1.620E-11 1.942E-11 2.320E-11 1.978E-11 2.362E-11 2.014E-11
    23.    9.811E-12 1.178E-11 1.000E-11 1.201E-11 1.020E-11 1.223E-11 1.040E-11 1.246E-11 1.489E-11 1.270E-11 1.516E-11 1.293E-11
    24.    1.235E-06 1.228E-06 1.236E-06 1.229E-06 1.236E-06 1.230E-06 1.235E-06 1.230E-06 1.223E-06 1.230E-06 1.223E-06 1.230E-06
    25.    1.235E-06 1.228E-06 1.236E-06 1.229E-06 1.236E-06 1.230E-06 1.235E-06 1.230E-06 1.223E-06 1.230E-06 1.223E-06 1.230E-06

           TOTAL CONCENTRATION (G/M**3)

           3.286E-06 1.429E-05 4.632E-06 1.338E-05 5.725E-06 1.023E-05 6.239E-06 9.448E-06 1.373E-05 1.016E-05 1.309E-05 1.102E-05
***RECEPTOR  NUMBER***

              13.        14.        15.        16.        17.        18.        19.        20.        21.        22.        23.        24.

SOURCE     PARTIAL CONCENTRATIONS (G/M**3)

     1.    8.543E-07 3.290E-06 2.121E-06 3.574E-06 3.663E-06 1.298E-06 4.836E-06 2.394E-06 5.401E-06 3.679E-06 5.319E-06 1.323E-13
     2.    2.408E-06 3.651E-06 3.268E-06 3.147E-06 3.636E-06 1.879E-06 3.590E-06 2.484E-06 3.330E-06 2.866E-06 2.975E-06 6.959E-11
     3.    6.956E-06 1.821E-06 5.149E-06 1.599E-06 3.785E-06 5.830E-06 2.856E-06 5.055E-06 2.237E-06 4.240E-06 1.829E-06 2.083E-09
     4.    3.363E-25 1.370E-14 2.494E-18 1.695E-11 3.599E-14 3.202E-17 1.162E-11 6.096E-14 3.647E-10 8.214E-12 2.569E-09 3.294E-29
     5.    5.075E-26 1.017E-25 7.415E-26 1.480E-25 1.081E-25 7.884E-26 1.569E-25 1.146E-25 2.272E-25 1.663E-25 3.280E-25 1.437E-26
     6.    8.252E-26 1.653E-25 1.206E-25 2.406E-25 1.757E-25 1.282E-25 2.551E-25 1.864E-25 3.694E-25 2.703E-25 5.332E-25 2.335E-26
     7.    2.798E-25 5.664E-25 4.115E-25 8.297E-25 6.038E-25 4.387E-25 8.820E-25 6.420E-25 1.286E-24 9.373E-25 1.868E-24 7.877E-26
     8.    8.522E-28 1.664E-27 1.233E-27 2.400E-27 1.781E-27 1.320E-27 2.563E-27 1.902E-27 3.682E-27 2.736E-27 5.274E-27 2.706E-28
     9.    1.900E-28 3.624E-28 2.720E-28 5.210E-28 3.887E-28 2.918E-28 5.576E-28 4.161E-28 7.931E-28 5.967E-28 1.125E-27 6.481E-29
    10.    1.374E-28 2.619E-28 1.966E-28 3.765E-28 2.809E-28 2.109E-28 4.029E-28 3.006E-28 5.730E-28 4.310E-28 8.128E-28 4.679E-29
    11.    1.270E-28 2.421E-28 1.817E-28 3.480E-28 2.597E-28 1.949E-28 3.724E-28 2.779E-28 5.297E-28 3.985E-28 7.514E-28 4.327E-29
    12.    2.305E-14 3.624E-14 2.875E-14 4.503E-14 3.579E-14 2.840E-14 4.443E-14 3.531E-14 5.504E-14 4.383E-14 6.802E-14 6.751E-15
    13.    1.837E-14 2.885E-14 2.288E-14 3.579E-14 2.844E-14 2.256E-14 3.526E-14 2.802E-14 4.362E-14 3.472E-14 5.383E-14 5.331E-15
    14.    4.426E-27 8.608E-27 6.389E-27 1.239E-26 9.207E-27 6.835E-27 1.322E-26 9.827E-27 1.894E-26 1.410E-26 2.707E-26 1.410E-27
    15.    3.885E-27 7.555E-27 5.608E-27 1.087E-26 8.082E-27 6.000E-27 1.160E-26 8.626E-27 1.663E-26 1.238E-26 2.376E-26 1.238E-27
    16.    4.890E-27 9.510E-27 7.059E-27 1.369E-26 1.017E-26 7.552E-27 1.460E-26 1.086E-26 2.093E-26 1.558E-26 2.991E-26 1.559E-27
    17.    6.606E-27 1.285E-26 9.536E-27 1.849E-26 1.374E-26 1.020E-26 1.972E-26 1.466E-26 2.826E-26 2.104E-26 4.038E-26 2.103E-27
    18.    6.464E-27 1.257E-26 9.333E-27 1.810E-26 1.345E-26 9.987E-27 1.931E-26 1.436E-26 2.768E-26 2.061E-26 3.956E-26 2.064E-27
    19.      1.070E-26 2.082E-26 1.546E-26 2.997E-26 2.228E-26 1.655E-26 3.201E-26 2.380E-26 4.588E-26 3.417E-26 6.560E-26 3.426E-27
    20.      0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
    21.      3.981E-08 3.977E-08 3.970E-08 3.965E-08 3.959E-08 3.949E-08 3.948E-08 3.939E-C8 3.936E-08 3.929E-08 3.925E-08 3.742E-08
    22.      2.403E-11 2.051E-11 2.446E-11 2.088E-11 2.488E-11 2.959E-11 2.532E-11 3.008E-11 2.575E-11 3.058E-11 2.619E-11 1.287E-10
    23.      1.543E-11 1.317E-11 1.570E-11 1.341E-11 1.597E-11 1.899E-11 1.625E-11 1.931E-11 1.653E-11 1.963E-11 1.682E-11 8.265E-11
    24.      1.224E-06 1.230E-06 1.224E-06 1.229E-06 1.224E-06 1.218E-06 1.224E-06 1.218E-06 1.224E-06 1.218E-06 1.224E-06 1.099E-06
    25.      1.224E-06 1.230E-06 1.224E-06 1.229E-06 1.224E-06 1.218E-06 1.224E-06 1.218E-06 1.224E-06 1.218E-06 1.224E-06 1.099E-06

             TOTAL CONCENTRATION (G/M**3)

             1.271E-05 1.126E-05 1.303E-05 1.082E-05 1.357E-05 1.148E-05 1.377E-05 1.241E-05 1.346E-05 1.326E-05 1.261E-05 2.237E-06

***RECEPTOR  NUMBER***

             25.       26.       27.       28.       29.       30.

SOURCE       PARTIAL CONCENTRATIONS (G/M**3)

     1.      5.253E-06 3.131E-06 5.451E-06 3.971E-06 5.365E-06 4.575E-06
     2.      2.947E-06 2.203E-06 2.788E-06 2.395E-06 2.573E-06 2.452E-06
     3.      2.838E-06 3.687E-06 2.311E-06 3.291E-06 1.900E-06 2.888E-06
     4.      1.321E-09 1.082E-10 4.027E-09 7.236E-10 6.931E-09 2.371E-09
     5.      3.463E-25 2.541E-25 4.976E-25 3.657E-25 7.121E-25 5.243E-25
     6.      5.629E-25 4.131E-25 8.089E-25 5.945E-25 1.157E-24 8.523E-25
     7.      1.977E-24 1.445E-24 2.858E-24 2.093E-24 4.114E-24 3.018E-24
     8.      5.610E-27 4.180E-27 8.003E-27 5.971E-27 1.138E-26 8.498E-27
     9.      1.200E-27 9.045E-28 1.696E-27 1.280E-27 2.389E-27 1.805E-27
    10.      8.665E-28 6.532E-28 1.225E-27 9.243E-28 1.725E-27 1.303E-27
    11.      8.011E-28 6.039E-28 1.132E-27 8.546E-28 1.595E-27 1.205E-27
    12.      6.699E-14 5.347E-14 8.255E-14 6.601E-14 1.014E-13 8.126E-14
    13.      5.293E-14 4.224E-14 6.514E-14 5.208E-14 7.993E-14 6.402E-14
    14.      2.877E-26 2.147E-26 4.094E-26 3.059E-26 5.807E-26 4.345E-26
    15.      2.525E-26 1.884E-26 3.594E-26 2.685E-26 5.097E-26 3.814E-26
    16.      3.179E-26 2.372E-26 4.524E-26 3.381E-26 6.417E-26 4.801E-26
    17.      4.291E-26 3.202E-26 6.107E-26 4.563E-26 8.661E-26 6.480E-26
    18.      4.206E-26 3.139E-26 5.988E-26 4.474E-26 8.493E-26 6.355E-26
    19.      6.977E-26 5.207E-26 9.935E-26 7.425E-26 1.410E-25 1.055E-25
    20.      0.0       0.0       0.0       0.0       0.0       0.0
    21.      3.907E-08 3.897E-08 3.896E-08 3.887E-08 3.885E-08 3.877E-08
    22.      3.159E-11 3.736E-11 3.210E-11 3.794E-11 3.262E-11 3.853E-11
    23.      2.028E-11 2.399E-11 2.061E-11 2.437E-11 2.095E-11 2.474E-11
    24.      1.218E-06 1.212E-06 1.218E-06 1.212E-06 1.218E-06 1.213E-06
    25.      1.218E-06 1.212E-06 1.218E-06 1.212E-06 1.218E-06 1.213E-06

             TOTAL CONCENTRATION (G/M**3)

             1.352E-05 1.148E-05 1.303E-05 1.212E-05 1.232E-05 1.238E-05
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Add'l run with extra
receptors (w/corrected rec.24)

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 DETERMINATION OF MAX PT FUR AAUS JYR72 JDAY175 ADJ THROUGH FP&L

        0.

 * * * S O U R C E S * * *
       NO     Q (G/SEC)  HP (M) TS (DEG-K)  VS (M/SEC) D(M) VF(M**3/SEC)  R (KM)    S (KM)

       1.       2.89      18.3     342.6       15.0      2.85       0.0   388.950  3047.280
       2.       1.10      38.1     311.5       30.0      1.02       0.0   388.720  3047.320
       3.       0.73      18.3     309.9       30.0      0.82       0.0   388.730  3047.180
       4.       0.01      12.2     505.4        7.6      0.31       0.0   389.180  3047.630
       5.       1.43      38.4     325.0       10.9      2.40       0.0   362.900  3082.500
       6.       2.04      24.4     328.0       14.3      0.90       0.0   362.900  3082.500
       7.       5.04       0.9     305.0       19.6      0.70       0.0   363.200  3082.300
       8.       2.85      19.8     349.0       11.3      2.40       0.0   360.100  3087.500
       9.      15.22      85.3     432.0       18.5      3.40       0.0   358.000  3091.000
      10.      10.36      85.3     443.0        7.4      3.70       0.0   358.000  3091.000
      11.       9.82      85.3     436.0       17.5      2.90       0.0   358.000  3091.000
      12.     103.37     149.3     422.0       28.7      7.30       0.0   361.900  3075.000
      13.      51.89     144.3     422.0       14.3      7.30       0.0   361.900  3075.000
      14.      18.05      93.3     427.0       24.8      3.00       0.0   360.000  3087.500
      15.      15.85      93.3     427.0       24.8      3.00       0.0   360.000  3087.500
      16.      20.17      93.3     403.0       27.5      3.20       0.0   360.000  3087.500
      17.      25.75      93.3     414.0       18.6      2.90       0.0   360.000  3087.500
      18.      28.81      93.3     415.0       21.1      4.40       0.0   360.000  3087.500
      19.      54.99      93.3     418.0       23.1      5.40       0.0   360.000  3087.500
      20.       3.25      12.2     325.0       15.7      0.50       0.0   361.800  3088.300
      21.       1.77      61.0     337.0       10.3      2.40       0.0   348.500  3057.300
      22.       2.64      29.0     333.0       20.0      0.90       0.0   346.800  3041.100
      23.       1.62      21.6     563.0       11.9      1.90       0.0   346.800  3041.100
      24.      99.04     152.1     425.0       20.7      7.90       0.0   367.100  3053.800
      25.      99.04     152.1     425.0       20.7      7.90       0.0   367.100  3053.800

 * * * R E C E P T O R S * * *
       NO.    HREC(KM)  SREC(KM)     Z (M)

        1.   390.000  3046.900       0.0
        2.   388.800  3047.100       0.0
        3.   388.90C  3047.100       0.0
        4.   389.000  3047.000       0.0
        5.   389.100  3047.000       0.0
        6.   389.200  3047.000       0.0
        7.   389.300  3046.900       0.0
        8.   389.400  3046.900       0.0
        9.   389.500  3046.900       0.0
       10.   389.600  3046.900       0.0
       11.   389.700  3046.800       0.0
       12.   389.800  3046.800       0.0
       13.   389.900  3046.800       0.0
       14.   390.00C  3046.800       0.0

 * * * M E T E O R O L O G Y * * *
       NO.  THETA(DEG)    U (M/SEC)  KST    HL (M)  T (DEG-K)   P (MB)

        1.      289.        5.1        4    1332.     300.0    1013.0

 * * * R E C E P T O R   N U M B E R * * *

              1.        2.        3.        4.        5.        6.        7.        8.        9.        10.       11.       12.

 SOURCE      PARTIAL CONCENTRATIONS (G/M**3)

    1.      7.591E-06 0.0       0.0       0.0       0.0       3.768E-22 9.979E-20 2.285E-13 5.780E-10 4.713E-08 1.034E-08 1.666E-07     2
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AVERAGE CONCENTRATIONS FOR  24 HOURS.

* * * R E C E P T O R   N U M B E R * * *

                1.        2.        3.        4.        5.        6.        7.        8.        9.        10.       11.       12.

SOURCE     PARTIAL CONCENTRATIONS (G/M**3)

      1.   4.672E-06 0.0       0.0       0.0       1.007E-21 2.051E-12 1.155E-11 8.781E-09 1.752E-07 6.188E-07 5.044E-07 9.365E-07
      2.   2.997E-06 0.0       1.422E-13 6.658E-12 1.934E-08 3.338E-07 2.405E-07 6.544E-07 8.858E-07 1.254E-06 8.244E-07 1.040E-06
      3.   3.485E-06 4.419E-12 2.166E-06 1.501E-06 4.429E-06 9.168E-06 3.054E-06 4.953E-06 6.281E-06 6.399E-06 3.789E-06 4.238E-06
      4.   1.902E-10 0.0       0.0       0.0       0.0       0.0       0.0       0.0       1.437E-30 2.690E-22 1.761E-20 1.622E-16
      5.   2.405E-25 4.494E-27 6.719E-27 7.228E-27 1.074E-26 1.592E-26 1.702E-26 2.510E-26 3.689E-26 5.399E-26 5.748E-26 8.371E-26
      6.   3.909E-25 7.310E-27 1.093E-26 1.175E-26 1.746E-26 2.589E-26 2.768E-26 4.082E-26 5.999E-26 8.779E-26 9.345E-26 1.361E-25
      7.   1.364E-24 2.371E-26 3.570E-26 3.852E-26 5.763E-26 8.602E-26 9.224E-26 1.370E-25 2.026E-25 2.985E-25 3.187E-25 4.671E-25
      8.   3.925E-27 7.980E-29 1.178E-28 1.274E-28 1.863E-28 2.759E-28 2.969E-28 4.331E-28 6.300E-28 9.129E-28 9.784E-28 1.412E-27
      9.   8.475E-28 1.924E-29 2.803E-29 3.036E-29 4.401E-29 6.370E-29 6.864E-29 9.895E-29 1.423E-28 2.039E-28 2.189E-28 3.126E-28
     10.   6.121E-28 1.392E-29 2.028E-29 2.196E-29 3.183E-29 4.606E-29 4.962E-29 7.153E-29 1.029E-28 1.474E-28 1.582E-28 2.258E-28
     11.   5.659E-28 1.286E-29 1.874E-29 2.029E-29 2.941E-29 4.257E-29 4.586E-29 6.611E-29 9.507E-29 1.362E-28 1.462E-28 2.088E-28
     12.   5.426E-14 5.834E-15 7.398E-15 7.342E-15 9.273E-15 1.169E-14 1.157E-14 1.454E-14 1.822E-14 2.277E-14 2.250E-14 2.803E-14
     13.   4.293E-14 4.697E-15 5.948E-15 5.893E-15 7.433E-15 9.356E-15 9.245E-15 1.160E-14 1.452E-14 1.812E-14 1.788E-14 2.224E-14
     14.   2.018E-26 4.210E-28 6.244E-28 6.745E-28 9.882E-28 1.444E-27 1.552E-27 2.259E-27 3.277E-27 4.737E-27 5.073E-27 7.303E-27
     15.   1.771E-26 3.695E-28 5.481E-28 5.924E-28 8.674E-28 1.268E-27 1.363E-27 1.983E-27 2.877E-27 4.158E-27 4.453E-27 6.410E-27
     16.   2.230E-26 4.650E-28 6.898E-28 7.456E-28 1.092E-27 1.595E-27 1.715E-27 2.496E-27 3.621E-27 5.234E-27 5.605E-27 8.069E-27
     17.   3.010E-26 6.285E-28 9.326E-28 1.008E-27 1.475E-27 2.156E-27 2.318E-27 3.372E-27 4.892E-27 7.070E-27 7.570E-27 1.090E-26
     18.   2.950E-26 6.138E-28 9.109E-28 9.849E-28 1.442E-27 2.108E-27 2.267E-27 3.299E-27 4.787E-27 6.921E-27 7.413E-27 1.067E-26
     19.   4.892E-26 1.013E-27 1.505E-27 1.628E-27 2.385E-27 3.487E-27 3.751E-27 5.460E-27 7.927E-27 1.146E-26 1.228E-26 1.769E-26
     20.   0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
     21.   3.918E-08 4.068E-08 4.057E-08 4.033E-08 4.023E-08 4.013E-08 3.989E-08 3.979E-08 3.970E-08 3.960E-08 3.936E-08 3.927E-08
     22.   3.108E-11 1.768E-11 1.802E-11 2.199E-11 2.239E-11 2.279E-11 2.766E-11 2.813E-11 2.861E-11 2.910E-11 3.508E-11 3.564E-11
     23.   1.996E-11 1.134E-11 1.156E-11 1.411E-11 1.437E-11 1.463E-11 1.775E-11 1.806E-11 1.837E-11 1.868E-11 2.252E-11 2.288E-11
     24.   1.218E-06 1.226E-06 1.227E-06 1.219E-06 1.221E-06 1.222E-06 1.214E-06 1.215E-06 1.216E-06 1.217E-06 1.209E-06 1.210E-06
     25.   1.218E-06 1.226E-06 1.227E-06 1.219E-06 1.221E-06 1.222E-06 1.214E-06 1.215E-06 1.216E-06 1.217E-06 1.209E-06 1.210E-06

           TOTAL CONCENTRATION (G/M**3)

           1.363E-05 2.493E-06 4.662E-06 3.980E-06 6.930E-06 1.199E-05 5.762E-06 8.086E-06 9.814E-06 1.075E-05 7.576E-06 8.675E-06

* * * R E C E P T O R   N U M B E R * * *

                13.       14.

SOURCE     PARTIAL CONCENTRATIONS (G/M**3)

      1.   1.445E-06 2.211E-06
      2.   1.434E-06 1.866E-06
      3.   4.264E-06 4.035E-06
      4.   8.459E-14 6.073E-12
      5.   1.216E-25 1.762E-25
      6.   1.978E-25 2.864E-25
      7.   6.831E-25 9.956E-25
      8.   2.033E-27 2.920E-27
      9.   4.455E-28 6.382E-28
     10.   3.219E-28 4.609E-28
     11.   2.976E-28 4.261E-28
     12.   3.486E-14 4.324E-14
     13.   2.761E-14 3.420E-14
     14.   1.049E-26 1.504E-26
     15.   9.210E-27 1.320E-26
     16.   1.159E-26 1.661E-26
     17.   1.565E-26 2.243E-26
     18.   1.534E-26 2.198E-26
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19.      2.543F-26 3.646E-26
20.      0.0       0.0
21.      3.917E-08 3.907E-08
22.      3.621E-11 3.678L-11
23.      2.325E-11 2.362E-11
24.      1.211E-06 1.212E-06
25.      1.211L-06 1.212E-06

          TOTAL CONCENTRATION (G/M**3)


         9.604F-06 1.058E-05
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```
DETERMINATION OF PROP BDY CONC. FOR AAQS JYR72 JDAY174 ADJ THROUGH FPL

        0.

* * * S O U R C E S * * *
      NO      Q (G/SEC)  HP (M) TS (DEG-K)  VS (M/SEC) D(M) VF(M**3/SEC)  R (KM)    S (KM)

       1.       2.89      18.3    342.6      15.0     2.85      0.0   388.950  3047.280
       2.       1.10      38.1    311.5      30.0     1.02      0.0   388.720  3047.320
       3.       0.73      18.3    309.9      30.0     0.82      0.0   388.730  3047.180
       4.       0.00      12.2    505.4       7.6     0.31      0.0   389.180  3047.630
       5.       1.43      38.4    325.0      10.9     2.40      0.0   362.900  3082.500
       6.       2.04      24.4    328.0      14.3     0.90      0.0   362.900  3082.500
       7.       5.04       0.9    305.0      19.6     0.70      0.0   363.200  3082.300
       8.       2.85      19.8    349.0      11.3     2.40      0.0   360.100  3087.500
       9.      15.22      85.3    432.0      18.5     3.40      0.0   358.000  3091.000
      10.      10.36      85.3    443.0       7.4     3.70      0.0   358.000  3091.000
      11.       9.82      85.3    436.0      17.5     2.90      0.0   358.000  3091.000
      12.     103.37     149.3    422.0      28.7     7.30      0.0   361.900  3075.000
      13.      51.90     149.3    422.0      14.3     7.30      0.0   361.900  3075.000
      14.      18.06      93.3    427.0      24.8     3.00      0.0   360.000  3087.500
      15.      15.85      93.3    427.0      24.8     3.00      0.0   360.000  3087.500
      16.      20.17      93.3    403.0      27.5     3.20      0.0   360.000  3087.500
      17.      25.75      93.3    414.0      18.6     2.90      0.0   360.000  3087.500
      18.      28.81      93.3    415.0      21.1     4.40      0.0   360.000  3087.500
      19.      55.00      93.3    418.0      23.1     5.40      0.0   360.000  3087.500
      20.       3.25      12.2    325.0      15.7     0.50      0.0   361.800  3088.300
      21.       1.77      61.0    337.0      10.3     2.40      0.0   348.500  3057.300
      22.       2.64      29.0    333.0      20.0     0.90      0.0   346.800  3041.100
      23.       1.62      21.6    563.0      11.9     1.90      0.0   346.800  3041.100
      24.      99.04     152.1    425.0      20.7     7.90      0.0   367.100  3053.800
      25.      99.04     152.1    425.0      20.7     7.90      0.0   367.100  3053.800
* * * R E C E P T O R S * * *
      NO.     RREC(KM) SREC(KM)     Z (M)

       1.    390.880  3046.680       0.0
       2.    390.950  3046.870       0.0
       3.    390.950  3046.770       0.0
       4.    390.950  3046.670       0.0
       5.    390.950  3046.570       0.0
       6.    390.950  3046.470       0.0
       7.    391.050  3046.640       0.0
* * * M E T E O R O L O G Y * * *
      NO.  THETA(DEG)    U (M/SEC)  KST      HL (M)  T (DEG-K)   P (MB)

       1.      280.         5.7        4      785.      300.0    1013.0

* * * R E C E P T O R   N U M B E R * * *

             1.         2.         3.         4.         5.         6.         7.

SOURCE       PARTIAL CONCENTRATIONS (G/M**3)

    1.      1.244E -6 8.144E -6 4.445E -6 1.423E -6 2.724E -7 3.195E -8 1.366E -6
    2.      7.563E -7 3.468E -6 2.102E -6 8.199E -7 2.085E -7 3.523E -8 7.616E -7
    3.      2.735E -6 3.261E -6 3.760E -6 2.702E -6 1.232E -6 3.632E -7 2.431E -6
    4.      2.720E-14 7.092E-11 2.995E-12 7.439E-14 1.097E-15 9.937E-18 1.467E-13
    5.      0.000E  0 0.000E  0 0.000E  0 0.000E  0 0.000E  0 0.000E  0 0.000E  0
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 23.     4.846E-11 3.345E-11 4.098E-11 5.005E-11 6.100E-11 7.414E-11 5.404E-11
 24.     1.373E-11 3.192E-11 2.138E-11 1.424E-11 9.409E-12 6.176E-12 1.406E-11
 25.     1.373E-11 3.192E-11 2.138E-11 1.424E-11 9.409E-12 6.176E-12 1.406E-11

         TOTAL CONCENTRATION (G/M**3)

         9.514E -8 2.507E -6 6.125E -7 1.018E -7 1.120E -8 9.741E-10 8.197E -8

***METEOROLOGY***
   NO.  THETA(DEG)   U (M/SEC)  KST     HL (M)  T (DEG-K)   P (MB)









AVERAGE CONCENTRATIONS FOR  24 HOURS.

***RECEPTOR   NUMBER***

             1.        2.        3.        4.        5.        6.        7.

SOURCE       PARTIAL CONCENTRATIONS (G/M**3)

    1.     4.121E -6 3.479E -6 4.207E -6 4.089E -6 3.208E -6 2.250E -6 3.941E -6
    2.     1.698E -6 1.339E -6 1.609E -6 1.646E -6 1.402E -6 1.019E -6 1.561E -6
    3.     1.626E -6 9.124E -7 1.223E -6 1.534E -6 1.670E -6 1.515E -6 1.450E -6
    4.     6.180E -9 1.101E -8 8.228E -9 6.436E -9 4.075E -9 1.911E -9 6.317E -9
    5.     1.254E-21 2.081E-21 1.724E-21 1.429E-21 1.183E-21 9.796E-22 1.669E-21
    6.     1.963E-21 3.257E-21 2.699E-21 2.237E-21 1.852E-21 1.533E-21 2.612E-21
    7.     7.186E-21 1.200E-20 9.920E-21 8.205E-21 6.780E-21 5.601E-21 9.607E-21
    8.     1.071E-22 1.743E-22 1.457E-22 1.218E-22 1.018E-22 8.507E-23 1.421E-22
    9.     6.938E-23 1.110E-22 9.343E-23 7.867E-23 6.619E-23 5.569E-23 9.150E-23
   10.     4.724E-23 7.558E-23 6.362F-23 5.357F-23 4.508F-23 3.792F-23 6.230E-23
 13.   6.522E-14 9.481E-14 8.173E-14 7.045E-14 6.068E-14 5.226E-14 7.675E-14
 14.   6.140E-22 9.964E-22 8.337E-22 6.977E-22 5.834E-22 4.878E-22 8.129E-22
 15.   5.390E-22 8.746E-22 7.318E-22 6.124E-22 5.121E-22 4.282E-22 7.135E-22
 16.   6.859E-22 1.113E-21 9.312E-22 7.793E-22 6.517E-22 5.448E-22 9.079E-22
 17.   8.757E-22 1.421E-21 1.189E-21 9.949E-22 8.320E-22 6.956E-22 1.159E-21
 18.   9.796E-22 1.590E-21 1.330E-21 1.113E-21 9.308E-22 7.782E-22 1.297E-21
 19.   1.870E-21 3.035E-21 2.539E-21 2.125E-21 1.777E-21 1.486E-21 2.476E-21
 20.   6.424E-25 1.101E-24 9.068E-25 7.470E-25 6.149E-25 5.061E-25 8.972E-25
 21.   3.137E -8 3.078E -8 3.104E -8 3.128E -8 3.150E -8 3.172E -8 3.118E -8
 22.   3.159E-12 2.180E-12 2.671E-12 3.263E-12 3.978E-12 4.837E-12 3.523E-12
 23.   2.029E-12 1.400E-12 1.716E-12 2.096E-12 2.555E-12 3.107E-12 2.264E-12
 24.   1.187E -6 1.206E -6 1.198E -6 1.187E -6 1.174E -6 1.158E -6 1.186E -6
 25.   1.187E -6 1.206E -6 1.198E -6 1.187E -6 1.174E -6 1.158E -6 1.186E -6
        TOTAL CONCENTRATION (G/M**3)

       9.858E -6 8.184E -6 9.474E -6 9.683E -6 8.664E -6 7.134E -6 9.361E -6
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DETERMINATION OF PROP BDY CONC FOR PSD JYR 72 JDAY 174 ADJ. THROUGH MAN ENERGY

        0.

* * * S O U R C E S * * *
      NO      Q (G/SEC)  HP (M) TS (DEG-K)  VE (M/SEC) D(M) VF(M**3/SEC)  R (KM)    S (KM)

       1.       2.89       18.3     342.6       15.0       2.85         0.0   388.950  3047.280
       2.       1.10       38.1     311.5       30.0       1.02         0.0   388.720  3047.320
       3.       0.73       18.3     309.9       30.0       0.82         0.0   388.730  3047.180
       4.       0.00       12.2     505.4        7.6       0.31         0.0   389.180  3047.630
       5.       0.16       19.5     561.0        8.1       0.60         0.0   346.600  3057.700
       6.       0.73       30.5     561.0        6.5       0.90         0.0   346.600  3057.700
       7.       2.04       24.4     328.0       14.3       0.90         0.0   362.900  3082.500
       8.       5.04        0.9     305.0       19.6       0.70         0.0   362.900  3082.500
       9.       4.01       18.3     308.0        1.6       0.60         0.0   362.900  3084.700
      10.       3.25       12.2     325.0       15.7       0.50         0.0   361.800  3088.300
      11.       3.44       61.0     305.0        1.9       6.90         0.0   363.100  3089.000

* * * R E C E P T O R S * * *
       NO.     RREC(KM) SREC(KM)     Z (M)

        1.    390.900  3046.760       0.0
        2.    390.950  3046.940       0.0
        3.    390.950  3046.840       0.0
        4.    390.950  3046.740       0.0
        5.    390.950  3046.640       0.0
        6.    390.950  3046.540       0.0
        7.    391.050  3046.720       0.0

* * * M E T E O R O L O G Y * * *
       NO.  THETA(DEG)    U (M/SEC)  KST      HL (M)  T (DEG-K)   P (MB)

        1.      278.        5.7        4      785.      300.0    1013.0

* * * R E C E P T O R   N U M B E R * * *

               1.          2.          3.          4.          5.          6.          7.

SOURCE       PARTIAL CONCENTRATIONS (G/M**3)

     1.      1.490E -6 8.115E -6 4.326E -6 1.323E -6 2.381E -7 2.549E -8 1.389E -6
     2.      7.931E -7 3.387E -6 1.940E -6 7.034E -7 1.445E -7 2.499E -8 2.076E -7
     3.      2.814E -6 3.387E -6 3.748E -6 2.557E -6 1.096E -6 2.997E -7 2.899E -6
     4.      5.052E-14 6.939E-11 2.641E-12 5.598E-14 6.848E-16 4.844E-10 1.443E-13
     5.      8.273E-10 1.005E -9 9.055E-10 8.136E-10 7.287E-10 4.529E-10 8.140E-10
     6.      3.358E -9 4.104E -9 3.497E -9 3.322E -9 2.880E -9 2.444E -9 3.324E -9
     7.      0.000E  0 0.000E  0 0.000E  0 0.000E  0 0.000E  0 0.000E  0 0.000E  0
     8.      0.000E  0 0.000E  0 0.000E  0 0.000E  0 0.000E  0 0.000E  0 0.000E  0
     9.      0.000E  0 0.000E  0 0.000E  0 0.000E  0 0.000E  0 0.000E  0 0.000E  0
    10.      0.000E  0 0.000E  0 0.000E  0 0.000E  0 0.000E  0 0.000E  0 0.000E  0
    11.      0.000E  0 0.000E  0 0.000E  0 0.000E  0 0.000E  0 0.000E  0 0.000E  0

              TOTAL CONCENTRATION (G/M**3)


              5.101E -6 1.489E -5 1.002E -5 4.589E -6 1.507E -6 3.525E -7 4.490E -6

* * * M E T E O R O L O G Y * * *
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AVERAGE CONCENTRATIONS FOR  24 HOURS.

***R E C E P T O R   N U M B E R***

                1.         2.         3.         4.         5.         6.         7.
SOURCE      PARTIAL CONCENTRATIONS (G/M**3)

     1.     4.583E -6 3.647E -6 4.539E -6 4.459E -6 3.436E -6 2.328E -6 4.337E -6
     2.     1.849E -6 1.433E -6 1.750E -6 1.790E -6 1.485E -6 1.037E -6 1.704E -6
     3.     1.688E -6 9.503E -7 1.299E -6 1.663E -6 1.824E -6 1.629E -6 1.564E -6
     4.     6.610E -9 1.167E -8 8.450E -9 6.441E -9 3.893E -9 1.695E -9 6.477E -9
     5.     4.222E -9 4.195E -9 4.207E -9 4.216E -9 4.221E -9 4.224E -9 4.202E -9
     6.     1.724E -8 1.713E -8 1.718E -8 1.722E -8 1.724E -8 1.725E -8 1.716E -8
     7.     2.045E-23 3.365E-23 2.726E-23 2.207E-23 1.788E-23 1.447E-23 2.679E-23
     8.     9.769E-23 1.608E-22 1.302E-22 1.054E-22 8.540E-23 6.910E-23 1.280E-22
     9.     3.748E-25 6.316E-25 5.080E-25 4.084E-25 3.284E-25 2.639E-25 5.057E-25
    10.     2.356E-27 3.989E-27 3.210E-27 2.592E-27 2.078E-27 1.671E-27 3.235E-27
    11.     8.950E-30 1.579E-29 1.253E-29 9.950E-30 7.901E-30 6.269E-30 1.285E-29

            TOTAL CONCENTRATION (G/M**3)

            8.148E -6 6.044E -6 7.618E -6 7.940E -6 6.771E -6 5.017E -6 7.625E -6
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DETERMINATION OF MAX PT FOR PSD JYR72 JDAY175 ADJ THROUGH MAN ENERGY

        0.

* * * S O U R C E S * * *
      NO     Q (G/SEC)  HP (M) TS (DEG-K)  VS (M/SEC) D(M) VF(M**3/SEC)  R (KM)    S (KM)

       1.      2.89      18.3    342.6      15.0      2.85       0.0    388.950  3047.280
       2.      1.10      38.1    311.5      30.0      1.02       0.0    388.720  3047.320
       3.      0.73      18.3    309.9      30.0      0.82       0.0    388.730  3047.180
       4.      0.01      12.2    505.4       7.6      0.31       0.0    389.180  3047.630
       5.      0.16      19.5    561.0       8.1      0.60       0.0    346.600  3057.700
       6.      0.72      30.5    561.0       6.5      0.90       0.0    346.600  3057.700
       7.      2.04      24.4    328.0      14.3      0.90       0.0    362.900  3082.500
       8.      5.04       0.9    305.0      19.6      0.70       0.0    362.900  3082.500
       9.      4.01      18.3    308.0       1.6      0.60       0.0    362.900  3082.700
      10.      3.25      12.2    325.0      15.7      0.50       0.0    361.800  3088.300
      11.      3.44      61.0    305.0       1.9      6.90       0.0    363.100  3089.000

* * * R E C E P T O R S * * *
      NO.   RREC(KM)  SREC(KM)     Z (M)

       1.   389.000  3047.200      0.0
       2.   389.00C  3047.100      0.0
       3.   389.100  3047.200      0.0
       4.   389.100  3047.100      0.0
       5.   389.200  3047.200      0.0
       6.   389.200  3047.100      0.0
       7.   389.300  3047.200      0.0
       8.   389.300  3047.100      0.0
       9.   389.400  3047.200      0.0
      10.   389.400  3047.100      0.0
      11.   389.400  3047.000      0.0
      12.   389.500  3047.100      0.0
      13.   389.500  3047.000      0.0
      14.   369.600  3047.100      0.0
      15.   389.600  3047.000      0.0
      16.   389.700  3047.100      0.0
      17.   389.700  3047.000      0.0
      18.   389.800  3047.100      0.0
      19.   389.800  3047.000      0.0
      20.   389.900  3047.000      0.0
      21.   389.900  3046.900      0.0
      22.   390.000  3047.000      0.0
      23.   390.000  3046.900      0.0
      24.   390.100  3047.000      0.0
      25.   390.100  3046.900      0.0
      26.   390.200  3047.000      0.0
      27.   390.200  3046.900      0.0
      28.   390.200  3046.800      0.0
      29.   390.300  3046.900      0.0
      30.   390.300  3046.800      0.0

* * * M E T E O R O L O G Y * * *
      NO.  THETA(DEG)    U (M/SEC)  KST     HL (M)  T (DEG-K)   P (MB)

       1.      287.         5.1       4     1332.     300.0     1013.0

* * * R E C E P T O R   N U M B E R * * *
                1.        2.        3.        4.        5.        6.        7.        8.        9.       10.       11.       12.

SOURCE      PARTIAL CONCENTRATIONS (G/M**3)
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AVERAGE CONCENTRATIONS FOR  24 HOURS.

***RECEPTOR  NUMBER***

              1.         2.         3.         4.         5.         6.         7.         8.         9.         10.        11.        12.

SOURCE       PARTIAL CONCENTRATIONS (G/M**3)

    1.     6.036E-35  0.0        2.717E-10  2.130E-15  1.325E-07  2.674E-09  6.066E-07  1.725E-07  1.032E-06  9.143E-07  1.173E-07  2.174E-06
    2.     2.589E-07  4.992E-09  1.255E-06  2.261E-07  2.417E-06  7.872E-07  2.928E-06  1.941E-06  2.839E-06  3.187E-06  9.901E-07  3.852E-06
    3.     6.936E-07  1.112E-05  1.077E-06  1.260E-05  1.150E-06  9.171E-06  1.129E-06  6.144E-06  1.074E-06  4.223E-06  9.149E-06  3.101E-06
    4.     0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        3.232E-26  0.0        0.0        3.035E-22
    5.     4.432E-09  4.402E-09  4.424E-09  4.394E-09  4.417E-09  4.386E-09  4.410E-09  4.378E-09  4.402E-09  4.371E-09  4.341E-09  4.363E-09
    6.     1.802E-08  1.790E-08  1.798E-08  1.787E-08  1.795E-08  1.783E-08  1.792E-08  1.780E-08  1.789E-08  1.777E-08  1.765E-08  1.773E-08
    7.     5.482E-30  3.794E-30  8.521E-30  5.908E-30  1.321E-29  9.174E-30  2.037E-29  1.418E-29  3.134E-29  2.185E-29  1.524E-29  3.356E-29
    8.     3.107E-29  2.150E-29  4.829E-29  3.348E-29  7.484E-29  5.199E-29  1.154E-28  8.034E-29  1.776E-28  1.238E-28  8.637E-29  1.902E-28
    9.     5.568E-30  3.849E-30  8.686E-30  6.015E-30  1.351E-29  9.375E-30  2.092E-29  1.454E-29  3.231E-29  2.250E-29  1.567E-29  3.467E-29
   10.     0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
   11.     0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0

             TOTAL CONCENTRATION (G/M**3)

           9.749E-07  1.115E-05  2.354E-06  1.285E-05  3.730E-06  9.983E-06  4.686E-06  8.279E-06  4.967E-06  8.346E-06  1.028E-05  9.149E-06

***RECEPTOR  NUMBER***

              13.        14.        15.        16.        17.        18.        19.        20.        21.        22.        23.        24.

SOURCE       PARTIAL CONCENTRATIONS (G/M**3)

    1.     5.698E-07  3.380E-06  1.473E-06  4.108E-06  2.827E-06  4.338E-06  4.179E-06  5.145E-06  2.610E-06  5.504E-06  3.626E-06  5.492E-06
    2.     1.656E-06  3.938E-06  2.497E-06  3.681E-06  3.114E-06  3.248E-06  3.369E-06  3.360E-06  2.220E-06  3.195E-06  2.541E-06  2.951E-06
    3.     7.825E-06  2.445E-06  6.328E-06  2.040E-06  4.994E-06  1.767E-06  3.939E-06  3.128E-06  4.620E-06  2.522E-06  4.049E-06  2.076E-06
    4.     8.030E-28  5.916E-16  3.639E-20  2.023E-12  1.760E-15  1.911E-10  1.321E-12  7.799E-11  8.919E-13  9.043E-10  3.635E-11  3.636E-09
    5.     4.333E-09  4.356E-09  4.325E-09  4.348E-09  4.318E-09  4.341E-09  4.310E-09  4.303E-09  4.274E-09  4.296E-09  4.266E-09  4.289E-09
    6.     1.762E-08  1.770E-08  1.759E-08  1.767E-08  1.755E-08  1.764E-08  1.752E-08  1.749E-08  1.738E-08  1.746E-08  1.735E-08  1.743E-08
    7.     2.345E-29  5.130E-29  3.591E-29  7.821E-29  5.485E-29  1.187E-28  8.339E-29  1.265E-28  8.887E-29  1.926E-28  1.355E-28  2.898E-28
    8.     1.329E-28  2.937E-28  2.035E-28  4.432E-28  3.108E-28  6.726E-28  4.725E-28  7.166E-28  5.035E-28  1.091E-27  7.680E-28  1.642E-27
    9.     2.420E-29  5.320E-29  3.719E-29  8.140E-29  5.701E-29  1.240E-28  8.699E-29  1.324E-28  9.291E-29  2.008E-28  1.412E-28  3.054E-28
   10.     0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0
   11.     0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0

             TOTAL CONCENTRATION (G/M**3)

           1.007E-05  9.785E-06  1.032E-05  9.851E-06  1.096E-05  9.375E-06  1.151E-05  1.166E-05  9.471E-06  1.124E-05  1.024E-05  1.054E-05

***RECEPTOR  NUMBER***

              25.        26.        27.        28.        29.        30.

SOURCE       PARTIAL CONCENTRATIONS (G/M**3)

    1.     4.450E-06  5.255E-06  4.981E-06  2.809E-06  5.229E-06  3.566E-06
    2.     2.684E-06  2.675E-06  2.699E-06  1.870E-06  2.619E-06  2.062E-06
    3.     3.500E-06  1.746E-06  2.997E-06  3.350E-06  2.555E-06  3.088E-06
    4.     3.996E-10  7.263E-09  1.792E-05  1.927E-10  4.264E-09  9.088E-10
    5.     4.259E-09  4.282E-09  4.252E-09  4.223E-09  4.245E-09  4.216E-09
    6.     1.732E-08  1.740E-08  1.728E-08  1.718E-08  1.725E-08  1.714E-08
    7.     2.043E-28  4.350E-28  3.073E-28  2.169E-28  4.600E-28  3.253E-28
    8.     1.158E-27  2.465E-27  1.741E-27  1.229E-27  2.606E-27  1.843E-27
    9.     2.135E-28  4.601E-28  3.246E-28  2.272E-28  4.876E-28  3.444E-28
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CHECK HP USING 1977 RL JYR72 JDAY 175 ADJ THROUGH FP&L

      0.

* * * S O U R C E S * * *
      NO      Q (G/SEC)  HP (M) TS (DEG-K)  VS (M/SEC) D(M) VF(M**3/SEC)  R (KM)     S (KM)

       1.       1.43       38.4     325.0       10.9       2.40        0.0   362.900  3082.500
       2.       2.85       19.8     349.0       11.3       2.40        0.0   360.100  3087.500
       3.       0.72       65.3     402.0        9.6       3.40        0.0   358.000  3091.000
       4.       1.41       81.7     397.0        6.4       3.70        0.0   358.000  3091.000
       5.       4.23       85.3     402.0        9.6       3.40        0.0   358.000  3091.000
       6.       0.98       85.3     436.0       13.8       2.90        0.0   358.000  3091.000
       7.      44.57      149.3     405.0       19.1       7.30        0.0   361.900  3075.000
       8.      15.52      149.3     410.0        9.1       7.30        0.0   361.900  3075.000
       9.       4.57       93.3     427.0       14.7       3.00        0.0   360.000  3087.500
      10.       2.91       93.3     427.0       16.6       3.00        0.0   360.000  3087.500
      11.       5.56       93.3     381.0       18.7       3.20        0.0   360.000  3087.500
      12.      12.50       93.3     414.0       13.5       2.90        0.0   360.000  3087.500
      13.      13.44       93.3     415.0       15.1       4.40        0.0   360.000  3087.500
      14.       6.14       93.3     417.0       17.5       5.40        0.0   360.000  3087.500
      15.       1.36       61.0     337.0       10.3       2.40        0.0   348.500  3057.300
      16.       0.75       29.0     333.0       20.0       0.90        0.0   346.800  3041.100
      17.       1.34       21.6     563.0       11.9       1.90        0.0   346.800  3041.100
      18.      40.02      152.1     425.0       20.7       7.90        0.0   367.100  3053.800
      19.      94.34      152.1     425.0       20.7       7.90        0.0   367.100  3053.800

* * * R E C E P T O R S * * *
      NO.    RREC(KM)  SREC(KM)     Z (M)

       1.   389.000  3047.100       0.0

* * * M E T E O R O L O G Y * * *
      NO.  THETA(DEG)     U (M/SEC)  KST      HL (M)  T (DEG-K)   P (MB)

       1.       289.        5.1         4    1332.     300.0    1013.0

* * * R E C E P T O R   N U M B E R * * *

             1.

SOURCE       PARTIAL CONCENTRATIONS (G/M**3)

     1.     0.0
     2.     0.0
     3.     0.0
     4.     0.0
     5.     0.0
     6.     0.0
     7.     0.0
     8.     0.0
     9.     0.0
    10.     0.0
    11.     0.0
    12.     0.0
    13.     0.0
    14.     0.0
    15.     1.490E-08
    16.     0.0
    17.     0.0
    18.     8.833E-07
    19.     2.186E-06
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AVERAGE CONCENTRATIONS FOR  24 HOURS.

* * * R E C E P T O R   N U M B E R * * *

              1.

SOURCE        PARTIAL CONCENTRATIONS (G/M**3)

     1.       1.001E-26
     2.       1.745E-28
     3.       2.080E-30
     4.       4.154E-30
     5.       1.215E-29
     6.       2.760E-30
     7.       5.870E-15
     8.       2.742E-15
     9.       2.449E-28
    10.       1.544E-28
    11.       2.969E-28
    12.       6.808E-28
    13.       6.634E-28
    14.       2.693E-28
    15.       3.107E-08
    16.       5.193E-12
    17.       1.010E-11
    18.       4.963E-07
    19.       1.228E-06

              TOTAL CONCENTRATION (G/M**3)

              1.756E-06
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CHECK PB USING 1977 BL JYR72 JDAY174 ADJ THROUGH FPEL

      0.

* * * S O U R C E S * * *
        NO       Q (G/SEC)   HP (M)  TS (DEG-K)   VS (M/SEC)  D(M)  VF(M**3/SEC)   R (KM)     S (KM)

         1.        1.43       38.4      325.0        10.9       2.40       0.0    362.900   3082.500
         2.        2.85       19.8      349.0        11.3       2.40       0.0    360.100   3087.500
         3.        0.72       85.3      402.0         9.6       3.40       0.0    358.000   3091.000
         4.        1.41       81.7      397.0         6.4       3.70       0.0    358.000   3091.000
         5.        4.23       85.3      402.0         9.6       3.40       0.0    358.000   3091.000
         6.        0.98       85.3      436.0        13.8       2.90       0.0    358.000   3091.000
         7.       44.57      149.3      405.0        19.1       7.30       0.0    361.900   3075.000
         8.       15.52      149.3      410.0         9.1       7.30       0.0    361.900   3075.000
         9.        4.57       93.3      427.0        14.7       3.00       0.0    360.000   3087.500
        10.        2.91       93.3      427.0        16.6       3.00       0.0    360.000   3087.500
        11.        5.56       93.3      381.0        18.7       3.20       0.0    360.000   3087.500
        12.       12.50       93.3      414.0        13.5       2.90       0.0    360.000   3087.500
        13.       13.44       93.3      415.0        15.1       4.40       0.0    360.000   3087.500
        14.        6.14       93.3      417.0        17.5       5.40       0.0    360.000   3087.500
        15.        1.36       61.0      337.0        10.3       2.40       0.0    348.500   3057.300
        16.        0.75       29.0      333.0        20.0       0.90       0.0    346.800   3041.100
        17.        1.39       21.6      563.0        11.9       1.90       0.0    346.800   3041.100
        18.       40.02      152.1      425.0        20.7       7.90       0.0    367.100   3053.800
        19.       99.04      152.1      425.0        20.7       7.90       0.0    367.100   3053.800

* * * R E C E P T O R S * * *
        NO.     RREC(KM)  SREC(KM)     Z (M)

         1.    390.950   3046.670       0.0
         2.    390.880   3046.680       0.0

* * * M E T E O R O L O G Y * * *
        NO.  THETA(DEG)     U (M/SEC)   KST     HL (M)   T (DEG-K)    P (MB)

         1.      280.          5.7        4      785.      300.0      1013.0

* * * R E C E P T O R   N U M B E R * * *

               1.          2.

SOURCE        PARTIAL CONCENTRATIONS (G/M**3)

       1.     0.0         0.0
       2.     0.0         0.0
       3.     0.0         0.0
       4.     0.0         0.0
       5.     0.0         0.0
       6.     0.0         0.0
       7.     0.0         0.0
       8.     0.0         0.0
       9.     0.0         0.0
      10.     0.0         0.0
      11.     0.0         0.0
      12.     0.0         0.0
      13.     0.0         0.0
      14.     0.0         0.0
      15.     2.110E-08 2.104E-08
      16.     5.749E-18 5.435E-18
      17.     1.124E-17 1.063E-17
      18.     7.128E-08 6.998E-08
      19.     1.764E-07 1.732E-07
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AVERAGE CONCENTRATIONS FOR  24 HOURS.

***RECEPTOR  NUMBER***

              1.         2.

SOURCE       PARTIAL CONCENTRATIONS (G/M**3)

    1.      1.186E-19 1.056E-19
    2.      1.486E-20 1.325E-20
    3.      5.673E-22 5.069E-22
    4.      1.111E-21 9.930E-22
    5.      3.314E-21 2.961E-21
    6.      7.645E-22 6.831E-22
    7.      9.216E-13 8.624E-13
    8.      3.210E-13 3.004E-13
    9.      2.107E-20 1.879E-20
   10.      1.342E-20 1.197E-20
   11.      2.562E-20 2.285E-20
   12.      5.759E-20 5.137E-20
   13.      6.194E-20 5.526E-20
   14.      2.828E-20 2.523E-20
   15.      2.543E-08 2.551E-08
   16.      9.228E-13 8.935E-13
   17.      1.747E-12 1.740E-12
   18.      5.288E-07 5.288E-07
   19.      1.309E-06 1.309E-06

             TOTAL CONCENTRATION (G/M**3)

            1.863E-06 1.863E-06
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DETERM MP CONC FOR 1/3 NE SOURCES AAQS YR 73JDAY 024 ADJ TO  014 DEG

         0.

 * * * S O U R C E S * * *
         NO      Q (G/SEC)  HP (M) TS (DEG-K)  VS (M/SEC) D(M) VF(M**3/SEC)  R (KM)     S (KM)

          1.       1.21       46.3     309.0       19.0       1.80      0.0   393.800  3096.300
          2.       1.60       38.1     342.0       14.2       2.40      0.0   389.500  3067.900
          3.       1.88       38.1     344.0       20.2       2.40      0.0   389.500  3067.900
          4.       0.15       22.9     305.0        9.9       0.90      0.0   389.500  3067.900
          5.       0.04       22.9     305.0        8.5       1.20      0.0   389.500  3067.900
          6.       5.34       30.5     372.0       36.4       1.20      0.0   394.700  3069.600
          7.       5.34        8.2     305.0       12.1       0.90      0.0   394.700  3069.600
          8.       6.36        8.1     305.0       11.4       1.00      0.0   394.700  3069.600
          9.       2.30       18.9     339.0       37.0       1.30      0.0   415.200  3080.000
         10.       3.08       16.8     344.0        9.6       2.80      0.0   415.200  3080.000
         11.       0.89       18.3     305.0       20.8       0.70      0.0   398.300  3075.500
         12.       0.12       30.5     305.0       23.0       0.50      0.0   398.300  3075.500
         13.       1.99       32.3     305.0       15.8       2.10      0.0   398.300  3075.500
         14.       0.03       32.3     305.0       12.1       0.80      0.0   398.300  3075.500
         15.       0.15       10.7     305.0       10.3       0.80      0.0   398.300  3075.500
         16.       2.85       19.2     305.0        7.1       2.90      0.0   415.300  3063.300
         17.       2.94       27.1     348.0       11.3       0.90      0.0   418.700  3083.600
         18.       2.90       30.5     305.0       35.9       0.90      0.0   409.900  3086.900
         19.       1.87       24.4     327.0       11.7       0.50      0.0   398.400  3085.300
         20.       1.82       12.2     305.0        0.0       0.0       0.0   398.400  3085.300
         21.       3.11       61.0     305.0       10.6       2.10      0.0   406.900  3085.100
         22.       2.25       25.6     341.0       25.4       1.50      0.0   416.000  3069.000
         23.       4.38       36.6     305.0       11.3       1.50      0.0   408.300  3082.700
         24.       3.71       42.7     354.0       13.3       0.90      0.0   408.300  3082.700
         25.       3.71       42.7     325.0        8.7       1.80      0.0   408.300  3082.700

 * * * R E C E P T O R S * * *
         NO.     RREC(KM)  SREC(KM)      Z (M)

          1.    388.700  3047.100        0.0
          2.    388.800  3047.100        0.0
          3.    388.900  3047.100        0.0
          4.    388.700  3047.000        0.0
          5.    388.800  3047.000        0.0
          6.    388.700  3046.900        0.0
          7.    388.800  3046.900        0.0
          8.    388.600  3046.800        0.0
          9.    388.700  3046.800        0.0
         10.    388.800  3046.800        0.0
         11.    388.600  3046.700        0.0
         12.    388.700  3046.700        0.0
         13.    388.800  3046.700        0.0
         14.    388.600  3046.600        0.0
         15.    388.700  3046.600        0.0
         16.    388.600  3046.500        0.0
         17.    388.700  3046.500        0.0
         18.    388.500  3046.400        0.0
         19.    388.600  3046.400        0.0
         20.    388.700  3046.400        0.0
         21.    388.500  3046.300        0.0
         22.    388.600  3046.300        0.0
         23.    388.700  3046.300        0.0
         24.    388.500  3046.200        0.0
         25.    388.600  3046.200        0.0
         26.    388.500  3046.100        0.0
         27.    388.600  3046.100        0.0
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      28.    388.400  3046.000         0.0
      29.    388.500  3046.000         0.0
      30.    388.600  3046.000         0.0

 * * * M E T E O R O L O G Y * * *
      NO.  THETA(DEG)    U (M/SEC)  KST     ML (M)  T (DEG-K)   P (MB)

      1.        80.         1.0         4      401.      289.0    1013.0
 * * * R E C E P T O R   N U M B E R * * *

              1.          2.          3.          4.          5.          6.          7.          8.          9.         10.         11.         12.
 SOURCE     PARTIAL CONCENTRATIONS (G/M**3)

       1.   0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0
       2.   0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0
       3.   0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0
       4.   0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0
       5.   0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0
       6.   0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0
       7.   0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0
       8.   0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0
       9.   0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0
      10.   0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0
      11.   0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0
      12.   0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0
      13.   0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0
      14.   0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0
      15.   0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0
      16.   8.169E-21   6.081E-21   4.505E-21   4.750E-21   3.522E-21   2.748E-21   2.030E-21   2.146E-21   1.583E-21   1.165E-21   1.239E-21   9.101E-22
      17.   0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0
      18.   0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0
      19.   0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0
      20.   0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0
      21.   0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0
      22.   0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0
      23.   0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0
      24.   0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0
      25.   0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0

            TOTAL CONCENTRATION (G/M**3)

            8.169E-21   6.081E-21   4.505E-21   4.750E-21   3.522E-21   2.748E-21   2.030E-21   2.146E-21   1.583E-21   1.165E-21   1.239E-21   9.101E-22
 * * * R E C E P T O R   N U M B E R * * *
             13.         14.         15.         16.         17.         18.         19.         20.         21.         22.         23.         24.
 SOURCE     PARTIAL CONCENTRATIONS (G/M**3)

       1.   0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0
       2.   0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0
       3.   0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0
       4.   0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0
       5.   0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0
       6.   0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0
       7.   0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0
       8.   0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0
       9.   0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0
      10.   0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0
      11.   0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0
      12.   0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0
      13.   0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0
      14.   0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0
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AVERAGE CONCENTRATIONS FOR  24 HOURS.

***R E C E P T O R   N U M B E R***

                  1.         2.         3.         4.         5.         6.         7.         8.         9.        10.        11.        12.

SOURCE       PARTIAL CONCENTRATIONS (G/M**3)

       1.    1.936E-08 1.850E-08 1.764E-08 1.922E-08 1.836E-08 1.908E-08 1.823E-08 1.980E-08 1.895E-08 1.809E-08 1.966E-08 1.881E-08
       2.    1.700E-08 1.835E-08 2.107E-08 1.691E-08 1.831E-08 1.683E-08 1.826E-08 1.648E-08 1.675E-08 1.822E-08 1.635E-08 1.667E-08
       3.    1.758E-08 1.859E-08 2.092E-08 1.748E-08 1.854E-08 1.739E-08 1.848E-08 1.734E-08 1.730E-08 1.844E-08 1.720E-08 1.721E-08
       4.    4.203E-09 5.136E-09 6.548E-09 4.196E-09 5.135E-09 4.189E-09 5.134E-09 3.636E-09 4.183E-09 5.133E-09 3.621E-09 4.177E-09
       5.    9.110E-10 1.108E-09 1.407E-09 9.094E-10 1.108E-09 9.078E-10 1.107E-09 7.919E-10 9.063E-10 1.107E-09 7.886E-10 9.049E-10
       6.    1.832E-07 1.939E-07 2.053E-07 1.847E-07 1.955E-07 1.863E-07 1.971E-07 1.775E-07 1.878E-07 1.987E-07 1.790E-07 1.894E-07
       7.    2.729E-07 2.896E-07 3.073E-07 2.753E-07 2.921E-07 2.777E-07 2.945E-07 2.641E-07 2.801E-07 2.970E-07 2.664E-07 2.824E-07
       8.    3.262E-07 3.461E-07 3.673E-07 3.291E-07 3.491E-07 3.319E-07 3.520E-07 3.157E-07 3.347E-07 3.550E-07 3.184E-07 3.376E-07
       9.    8.723E-09 8.985E-09 9.241E-09 8.896E-09 9.151E-09 9.062E-09 9.310E-09 8.973E-09 9.222E-09 9.461E-09 9.133E-09 9.373E-09
      10.    1.193E-08 1.229E-08 1.264E-08 1.217E-08 1.252E-08 1.240E-08 1.274E-08 1.228E-08 1.262E-08 1.294E-08 1.250E-08 1.282E-08
      11.    1.624E-08 1.612E-08 1.603E-08 1.611E-08 1.600E-08 1.598E-08 1.589E-08 1.598E-08 1.586E-08 1.578E-08 1.586E-08 1.575E-08
      12.    1.853E-09 1.840E-09 1.830E-09 1.839E-09 1.826E-09 1.824E-09 1.813E-09 1.824E-09 1.811E-09 1.800E-09 1.810E-09 1.797E-09
      13.    3.097E-08 3.075E-08 3.058E-08 3.073E-08 3.052E-08 3.049E-08 3.031E-08 3.049E-08 3.027E-08 3.010E-08 3.025E-08 3.005E-08
      14.    5.035E-10 4.998E-10 4.971E-10 4.995E-10 4.961E-10 4.956E-10 4.926E-10 4.956E-10 4.919E-10 4.892E-10 4.917E-10 4.883E-10
      15.    3.056E-09 3.034E-09 3.018E-09 3.032E-09 3.012E-09 3.009E-09 2.990E-09 3.008E-09 2.986E-09 2.970E-09 2.984E-09 2.964E-09
      16.    1.020E-08 9.682E-09 9.175E-09 9.266E-09 8.775E-09 8.388E-09 7.926E-09 8.017E-09 7.569E-09 7.137E-09 7.230E-09 6.812E-09
      17.    7.347E-09 7.610E-09 7.872E-09 7.532E-09 7.792E-09 7.714E-09 7.973E-09 7.636E-09 7.894E-09 8.149E-09 7.815E-09 8.070E-09
      18.    3.429E-09 3.711E-09 4.013E-09 3.560E-09 3.851E-09 3.696E-09 3.995E-09 3.547E-09 3.836E-09 4.143E-09 3.681E-09 3.978E-09
      19.    3.797E-08 3.942E-08 4.091E-08 3.818E-08 3.964E-08 3.839E-08 3.985E-08 3.718E-08 3.861E-08 4.006E-08 3.739E-08 3.882E-08
      20.    4.409E-08 4.580E-08 4.756E-08 4.435E-08 4.605E-08 4.460E-08 4.631E-08 4.318E-08 4.485E-08 4.656E-08 4.343E-08 4.510E-08
      21.    1.343E-08 1.414E-08 1.486E-08 1.372E-08 1.443E-08 1.400E-08 1.471E-08 1.358E-08 1.429E-08 1.500E-08 1.386E-08 1.457E-08
      22.    1.316E-12 1.117E-12 9.467E-13 1.055E-12 8.951E-13 8.457E-13 7.173E-13 7.997E-13 6.783E-13 5.761E-13 6.423E-13 5.458E-13
      23.    3.433E-09 3.749E-09 4.097E-09 3.584E-09 3.914E-09 3.741E-09 4.086E-09 3.577E-09 3.906E-09 4.266E-09 3.733E-09 4.077E-09
      24.    2.789E-09 3.045E-09 3.327E-09 2.911E-09 3.179E-09 3.039E-09 3.319E-09 2.906E-09 3.173E-09 3.465E-09 3.033E-09 3.312E-09
      25.    2.777E-09 3.031E-09 3.312E-09 2.898E-09 3.165E-09 3.026E-09 3.304E-09 2.893E-09 3.159E-09 3.445E-09 3.019E-09 3.297E-09

             TOTAL CONCENTRATION (G/M**3)

             1.040E-06 1.095E-06 1.156E-06 1.047E-06 1.102E-06 1.054E-06 1.110E-06 1.011E-06 1.061E-06 1.117E-06 1.018E-06 1.068E-06

***R E C E P T O R   N U M B E R***

                 13.        14.        15.        16.        17.        18.        19.        20.        21.        22.        23.        24.

SOURCE       PARTIAL CONCENTRATIONS (G/M**3)

       1.    1.796E-08 1.952E-08 1.867E-08 1.938E-08 1.854E-08 2.008E-08 1.924E-08 1.840E-08 1.994E-08 1.910E-08 1.827E-08 1.980E-08
       2.    1.818E-08 1.623E-08 1.659E-08 1.611E-08 1.652E-08 1.657E-08 1.599E-08 1.645E-08 1.641E-08 1.588E-08 1.638E-08 1.625E-08
       3.    1.839E-08 1.707E-08 1.712E-08 1.693E-08 1.704E-08 1.768E-08 1.680E-08 1.696E-08 1.750E-08 1.668E-08 1.689E-08 1.733E-08
       4.    5.132E-09 3.607E-09 4.172E-09 3.593E-09 4.167E-09 3.331E-09 3.581E-09 4.162E-09 3.308E-09 3.568E-09 4.157E-09 3.287E-09
       5.    1.107E-09 7.854E-10 9.036E-10 7.824E-10 9.024E-10 7.288E-10 7.794E-10 9.013E-10 7.237E-10 7.766E-10 9.002E-10 7.189E-10
       6.    2.003E-07 1.805E-07 1.909E-07 1.820E-07 1.924E-07 1.735E-07 1.835E-07 1.940E-07 1.750E-07 1.850E-07 1.955E-07 1.764E-07
       7.    2.994E-07 2.686E-07 2.848E-07 2.709E-07 2.872E-07 2.579E-07 2.732E-07 2.895E-07 2.601E-07 2.755E-07 2.919E-07 2.623E-07
       8.    3.579E-07 3.211E-07 3.404E-07 3.238E-07 3.432E-07 3.082E-07 3.265E-07 3.461E-07 3.109E-07 3.293E-07 3.489E-07 3.135E-07
       9.    9.605E-09 9.286E-09 9.518E-09 9.431E-09 9.654E-09 9.345E-09 9.569E-09 9.782E-09 9.484E-09 9.698E-09 9.902E-09 9.614E-09
      10.    1.314E-08 1.271E-08 1.302E-08 1.290E-08 1.321E-08 1.279E-08 1.309E-08 1.338E-08 1.298E-08 1.327E-08 1.355E-08 1.316E-08
      11.    1.567E-08 1.573E-08 1.564E-08 1.562E-08 1.553E-08 1.561E-08 1.550E-08 1.543E-08 1.549E-08 1.539E-08 1.533E-08 1.538E-08
      12.    1.789E-09 1.796E-09 1.785E-09 1.782E-09 1.772E-09 1.782E-09 1.769E-09 1.761E-09 1.768E-09 1.757E-09 1.749E-09 1.755E-09
      13.    2.990E-08 3.002E-08 2.984E-08 2.980E-08 2.963E-08 2.979E-08 2.959E-08 2.944E-08 2.956E-08 2.938E-08 2.925E-08 2.935E-08
      14.    4.859E-10 4.879E-10 4.849E-10 4.843E-10 4.815E-10 4.841E-10 4.808E-10 4.783E-10 4.804E-10 4.774E-10 4.753E-10 4.768E-10
      15.    2.950E-09 2.961E-09 2.943E-09 2.939E-09 2.923E-09 2.938E-09 2.918E-09 2.904E-09 2.915E-09 2.897E-09 2.885E-09 2.894E-09
      16.    6.408E-09 6.499E-09 6.110E-09 5.826E-09 5.465E-09 5.553E-09 5.206E-09 4.872E-09 4.558E-09 4.638E-09 4.330E-09 4.414E-09
      17.    8.322E-09 7.991E-09 8.242E-09 8.163E-09 8.411E-09 8.084E-09 8.331E-09 8.575E-09 8.252E-09 8.495E-09 8.735E-09 8.416E-09
      18.    4.294E-09 3.819E-09 4.125E-09 3.961E-09 4.274E-09 3.804E-09 4.106E-09 4.428E-09 3.944E-09 4.254E-09 4.585E-09 4.088E-09
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   19.      4.027E-08 3.760E-08 3.903E-08 3.781E-08 3.924E-08 3.663E-08 3.802E-08 3.945E-08 3.684E-08 3.823E-08 3.965E-08 3.705E-08
   20.      4.681E-08 4.367E-08 4.535E-08 4.392E-08 4.559E-08 4.254E-08 4.416E-08 4.584E-08 4.278E-08 4.441E-08 4.608E-08 4.302E-08
   21.      1.528E-08 1.414E-08 1.485E-08 1.442E-08 1.513E-08 1.401E-08 1.470E-08 1.541E-08 1.428E-08 1.498E-08 1.569E-08 1.456E-08
   22.      4.652E-13 5.172E-13 4.413E-13 4.192E-13 3.602E-13 3.980E-13 3.429E-13 2.983E-13 3.265E-13 2.850E-13 2.526E-13 2.726E-13
   23.      4.452E-09 3.897E-09 4.255E-09 4.067E-09 4.440E-09 3.888E-09 4.244E-09 4.632E-09 4.058E-09 4.427E-09 4.831E-09 4.233E-09
   24.      3.616E-09 3.165E-09 3.456E-09 3.303E-09 3.606E-09 3.159E-09 3.447E-09 3.762E-09 3.296E-09 3.596E-09 3.923E-09 3.438E-09
   25.      3.599E-09 3.151E-09 3.441E-09 3.289E-09 3.590E-09 3.145E-09 3.432E-09 3.745E-09 3.282E-09 3.580E-09 3.906E-09 3.423E-09

            TOTAL CONCENTRATION (G/M**3)

            1.125E-06 1.024E-06 1.076E-06 1.031E-06 1.083E-06 9.916E-07 1.038E-06 1.090E-06 9.981E-07 1.045E-06 1.098E-06 1.005E-06

***RECEPTOR  NUMBER***

            25.       26.       27.       28.       29.       30.

SOURCE      PARTIAL CONCENTRATIONS (G/M**3)

    1.      1.897E-08 1.966E-08 1.883E-08 2.034E-08 1.952E-08 1.870E-08
    2.      1.577E-08 1.609E-08 1.566E-08 1.721E-08 1.594E-08 1.556E-08
    3.      1.656E-08 1.716E-08 1.644E-08 1.855E-08 1.699E-08 1.633E-08
    4.      3.557E-09 3.266E-09 3.545E-09 3.221E-09 3.245E-09 3.535E-09
    5.      7.739E-10 7.141E-10 7.714E-10 7.074E-10 7.096E-10 7.689E-10
    6.      1.864E-07 1.779E-07 1.879E-07 1.697E-07 1.793E-07 1.894E-07
    7.      2.778E-07 2.645E-07 2.801E-07 2.519E-07 2.667E-07 2.823E-07
    8.      3.320E-07 3.161E-07 3.347E-07 3.011E-07 3.187E-07 3.375E-07
    9.      9.819E-09 9.736E-09 9.931E-09 9.654E-09 9.850E-09 1.003E-08
   10.      1.343E-08 1.332E-08 1.359E-08 1.321E-08 1.348E-08 1.373E-08
   11.      1.529E-08 1.526E-08 1.519E-08 1.525E-08 1.516E-08 1.509E-08
   12.      1.745E-09 1.742E-09 1.734E-09 1.741E-09 1.730E-09 1.723E-09
   13.      2.918E-08 2.913E-08 2.899E-08 2.912E-08 2.893E-08 2.881E-08
   14.      4.741E-10 4.734E-10 4.710E-10 4.731E-10 4.701E-10 4.680E-10
   15.      2.878E-09 2.873E-09 2.859E-09 2.871E-09 2.853E-09 2.841E-09
   16.      4.120E-09 3.918E-09 3.645E-09 3.727E-09 3.469E-09 3.223E-09
   17.      8.654E-09 8.576E-09 8.809E-09 8.497E-09 8.730E-09 8.958E-09
   18.      4.406E-09 4.235E-09 4.562E-09 4.069E-09 4.385E-09 4.720E-09
   19.      3.843E-08 3.725E-08 3.864E-08 3.609E-08 3.745E-08 3.884E-08
   20.      4.465E-08 4.326E-08 4.489E-08 4.191E-08 4.350E-08 4.513E-08
   21.      1.525E-08 1.483E-08 1.553E-08 1.442E-08 1.510E-08 1.580E-08
   22.      2.427E-13 2.332E-13 2.134E-13 2.245E-13 2.065E-13 1.957E-13
   23.      4.617E-09 4.415E-09 4.815E-09 4.221E-09 4.604E-09 5.018E-09
   24.      3.750E-09 3.587E-09 3.911E-09 3.429E-09 3.740E-09 4.076E-09
   25.      3.734E-09 3.571E-09 3.893E-09 3.414E-09 3.723E-09 4.057E-09

            TOTAL CONCENTRATION (G/M**3)

            1.052E-06 1.012E-06 1.059E-06 9.747E-07 1.018E-06 1.067E-06
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DETERM HP CONC FOR 2/3 NE SOURCES AAQS YR 73JDAY 024 ADJ TO  014 DEG

      0.

 * * * S O U R C E S * * *
       NO      Q (G/SEC)  HP (M) TS (DEG-K)  VS (M/SEC) D(M) VF(M**3/SEC)  R (KM)    S (KM)

        1.        3.71       36.6     335.0        9.1       2.40         0.0    408.300   3082.800
        2.        2.06       36.6     333.0       14.7       2.30         0.0    408.300   3082.700
        3.        2.12       42.7     331.0       16.2       2.80         0.0    408.200   3082.700
        4.        2.60       39.3     356.0        8.8       1.20         0.0    409.500   3079.500
        5.        2.60       39.3     333.0        6.9       2.30         0.0    409.500   3079.500
        6.        5.61       50.3     305.0       40.6       0.70         0.0    409.500   3079.500
        7.        1.61       39.3     311.0        9.3       2.30         0.0    409.500   3079.500
        8.        1.52       39.9     305.0       10.8       2.40         0.0    409.500   3079.500
        9.        2.88       39.9     305.0        6.0       1.20         0.0    409.500   3079.500
       10.        4.07       15.2     353.0       16.5       0.50         0.0    409.500   3079.500
       11.        2.02       24.4     336.0       21.3       1.50         0.0    403.700   3079.000
       12.        2.84        9.1     305.0      111.0       0.30         0.0    407.900   3071.000
       13.        3.23       24.4     328.0        5.0       2.30         0.0    398.400   3084.200
       14.        1.81       49.5     305.0       16.3       1.80         0.0    398.400   3084.200
       15.        4.50       61.0     344.0        9.8       2.60         0.0    396.700   3079.400
       16.        1.71       61.0     344.0        9.8       2.60         0.0    396.700   3079.400
       17.        3.88       49.7     305.0       28.7       0.90         0.0    405.600   3079.400

 * * * R E C E P T O R S * * *
       NO.    RREC(KM)  SREC(KM)       Z (M)

        1.    388.700  3047.100        0.0
        2.    388.800  3047.100        0.0
        3.    388.900  3047.100        0.0
        4.    388.700  3047.000        0.0
        5.    388.800  3047.000        0.0
        6.    388.700  3046.900        0.0
        7.    388.800  3046.900        0.0
        8.    388.600  3046.800        0.0
        9.    388.700  3046.800        0.0
       10.    388.800  3046.800        0.0
       11.    388.600  3046.700        0.0
       12.    388.700  3046.700        0.0
       13.    388.800  3046.700        0.0
       14.    388.600  3046.600        0.0
       15.    388.700  3046.600        0.0
       16.    388.600  3046.500        0.0
       17.    388.700  3046.500        0.0
       18.    388.500  3046.400        0.0
       19.    388.600  3046.400        0.0
       20.    388.700  3046.400        0.0
       21.    388.500  3046.300        0.0
       22.    388.600  3046.300        0.0
       23.    388.700  3046.300        0.0
       24.    388.500  3046.200        0.0
       25.    388.600  3046.200        0.0
       26.    388.500  3046.100        0.0
       27.    388.600  3046.100        0.0
       28.    388.400  3046.000        0.0
       29.    388.500  3046.000        0.0
       30.    388.600  3046.000        0.0

 * * * M E T E O R O L O G Y * * *
       NO.  THETA(DEG)     U (M/SEC)  KST      ML (M)  T (DEG-K)   P (MB)

        1.       80.          1.0        4       401.     299.0     1013.0
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SOURCE      PARTIAL CONCENTRATIONS (G/M**3)

   1.       4.003E-09 3.825E-09 4.173E-09 3.662E-09 3.991E-09 4.347E-09
   2.       2.110E-09 2.018E-09 2.200E-09 1.930E-09 2.105E-09 2.293E-09
   3.       2.230E-09 2.134E-09 2.324E-09 2.041E-09 2.224E-09 2.421E-09
   4.       2.228E-09 2.277E-09 2.115E-09 2.328E-09 2.163E-09 2.009E-09
   5.       2.215E-09 2.264E-09 2.103E-09 2.315E-09 2.150E-09 1.997E-09
   6.       4.523E-09 4.622E-09 4.294E-09 4.725E-09 4.390E-09 4.078E-09
   7.       1.379E-09 1.409E-09 1.309E-09 1.440E-09 1.338E-09 1.243E-09
   8.       1.303E-09 1.332E-09 1.237E-09 1.361E-09 1.265E-09 1.175E-09
   9.       2.476E-09 2.530E-09 2.350E-09 2.586E-09 2.403E-09 2.232E-09
  10.       4.480E-09 4.575E-09 4.253E-09 4.681E-09 4.348E-09 4.038E-09
  11.       1.866E-08 1.813E-08 1.897E-08 1.760E-08 1.844E-08 1.928E-08
  12.       2.411E-08 2.387E-08 2.433E-08 2.363E-08 2.410E-08 2.451E-08
  13.       6.180E-08 5.983E-08 6.217E-08 5.792E-08 6.019E-08 6.253E-08
  14.       2.865E-08 2.774E-08 2.881E-08 2.686E-08 2.791E-08 2.898E-08
  15.       9.530E-08 9.221E-08 9.577E-08 8.917E-08 9.268E-08 9.623E-08
  16.       3.629E-08 3.512E-08 3.647E-08 3.396E-08 3.530E-08 3.665E-08
  17.       1.006E-08 9.624E-09 1.043E-08 9.202E-09 9.982E-09 1.081E-08

             TOTAL CONCENTRATION (G/M**3)

            3.018E-07 2.935E-07 3.033E-07 2.854E-07 2.950E-07 3.048E-07
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AVERAGE CONCENTRATIONS FOR  24 HOURS.

***RECEPTOR  NUMBER***

                1.        2.        3.        4.        5.        6.        7.        8.        9.        10.       11.       12.

SOURCE      PARTIAL CONCENTRATIONS (G/M**3)

     1.     2.980E-09 3.254E-09 3.555E-09 3.111E-09 3.397E-09 3.248E-09 3.546E-09 3.105E-09 3.390E-09 3.701E-09 3.240E-09 3.538E-09
     2.     1.569E-09 1.713E-09 1.871E-09 1.638E-09 1.788E-09 1.710E-09 1.867E-09 1.635E-09 1.785E-09 1.949E-09 1.707E-09 1.863E-09
     3.     1.661E-09 1.814E-09 1.981E-09 1.734E-09 1.893E-09 1.810E-09 1.976E-09 1.731E-09 1.890E-09 2.062E-09 1.806E-09 1.972E-09
     4.     3.294E-09 3.068E-09 2.853E-09 3.131E-09 2.914E-09 2.975E-09 2.767E-09 3.037E-09 2.826E-09 2.627E-09 2.886E-09 2.684E-09
     5.     3.274E-09 3.050E-09 2.836E-09 3.113E-09 2.897E-09 2.957E-09 2.751E-09 3.019E-09 2.809E-09 2.611E-09 2.869E-09 2.668E-09
     6.     6.684E-09 6.226E-09 5.790E-09 6.354E-09 5.914E-09 6.038E-09 5.616E-09 6.163E-09 5.735E-09 5.331E-09 5.857E-09 5.446E-09
     7.     2.038E-09 1.898E-09 1.765E-09 1.937E-09 1.803E-09 1.841E-09 1.712E-09 1.879E-09 1.748E-09 1.625E-09 1.786E-09 1.660E-09
     8.     1.926E-09 1.794E-09 1.669E-09 1.831E-09 1.704E-09 1.740E-09 1.618E-09 1.776E-09 1.653E-09 1.536E-09 1.688E-09 1.569E-09
     9.     3.660E-09 3.409E-09 3.170E-09 3.480E-09 3.239E-09 3.306E-09 3.075E-09 3.375E-09 3.140E-09 2.919E-09 3.207E-09 2.982E-09
    10.     6.631E-09 6.175E-09 5.742E-09 6.303E-09 5.865E-09 5.988E-09 5.568E-09 6.112E-09 5.687E-09 5.285E-09 5.808E-09 5.400E-09
    11.     1.656E-08 1.746E-08 1.837E-08 1.691E-08 1.780E-08 1.725E-08 1.814E-08 1.670E-08 1.759E-08 1.847E-08 1.704E-08 1.792E-08
    12.     2.133E-08 2.211E-08 2.286E-08 2.182E-08 2.257E-08 2.229E-08 2.303E-08 2.201E-08 2.273E-08 2.340E-08 2.245E-08 2.313E-08
    13.     6.085E-08 6.328E-08 6.580E-08 6.123E-08 6.367E-08 6.160E-08 6.405E-08 5.960E-08 6.198E-08 6.443E-08 5.997E-08 6.235E-08
    14.     2.821E-08 2.933E-08 3.048E-08 2.838E-08 2.950E-08 2.855E-08 2.967E-08 2.764E-08 2.873E-08 2.985E-08 2.780E-08 2.890E-08
    15.     9.450E-08 9.829E-08 1.021E-07 9.502E-08 9.879E-08 9.553E-08 9.929E-08 9.233E-08 9.603E-08 9.978E-08 9.284E-08 9.653E-08
    16.     3.599E-08 3.743E-08 3.889E-08 3.619E-08 3.762E-08 3.638E-08 3.781E-08 3.516E-08 3.657E-08 3.800E-08 3.536E-08 3.676E-08
    17.     7.713E-09 8.424E-09 9.166E-09 8.036E-09 8.767E-09 8.368E-09 9.119E-09 7.984E-09 8.708E-09 9.478E-09 8.311E-09 9.054E-09

            TOTAL CONCENTRATION (G/M**3)

            2.989E-07 3.087E-07 3.190E-07 3.002E-07 3.101E-07 3.016E-07 3.116E-07 2.933E-07 3.030E-07 3.131E-07 2.946E-07 3.044E-07

***RECEPTOR  NUMBER***

                13.       14.       15.       16.       17.       18.       19.       20.       21.       22.       23.       24.

SOURCE      PARTIAL CONCENTRATIONS (G/M**3)

     1.     3.861E-09 3.382E-09 3.692E-09 3.529E-09 3.851E-09 3.374E-09 3.681E-09 4.016E-09 3.521E-09 3.840E-09 4.187E-09 3.672E-09
     2.     2.034E-09 1.781E-09 1.944E-09 1.859E-09 2.029E-09 1.778E-09 1.940E-09 2.116E-09 1.855E-09 2.023E-09 2.207E-09 1.935E-09
     3.     2.151E-09 1.885E-09 2.057E-09 1.967E-09 2.146E-09 1.881E-09 2.052E-09 2.237E-09 1.962E-09 2.140E-09 2.332E-09 2.046E-09
     4.     2.493E-09 2.741E-09 2.548E-09 2.604E-09 2.419E-09 2.659E-09 2.472E-09 2.296E-09 2.525E-09 2.347E-09 2.179E-09 2.398E-09
     5.     2.479E-09 2.725E-09 2.533E-09 2.588E-09 2.405E-09 2.644E-09 2.458E-09 2.282E-09 2.511E-09 2.333E-09 2.166E-09 2.385E-09
     6.     5.060E-09 5.564E-09 5.171E-09 5.284E-09 4.909E-09 5.397E-09 5.017E-09 4.660E-09 5.126E-09 4.763E-09 4.423E-09 4.868E-09
     7.     1.543E-09 1.696E-09 1.576E-09 1.611E-09 1.496E-09 1.645E-09 1.529E-09 1.420E-09 1.563E-09 1.452E-09 1.348E-09 1.484E-09
     8.     1.458E-09 1.603E-09 1.490E-09 1.523E-09 1.414E-09 1.555E-09 1.446E-09 1.343E-09 1.477E-09 1.372E-09 1.274E-09 1.403E-09
     9.     2.771E-09 3.046E-09 2.831E-09 2.893E-09 2.688E-09 2.955E-09 2.747E-09 2.551E-09 2.806E-09 2.608E-09 2.421E-09 2.665E-09
    10.     5.016E-09 5.516E-09 5.125E-09 5.238E-09 4.865E-09 5.350E-09 4.972E-09 4.617E-09 5.080E-09 4.720E-09 4.381E-09 4.824E-09
    11.     1.880E-08 1.737E-08 1.825E-08 1.770E-08 1.857E-08 1.716E-08 1.803E-08 1.889E-08 1.749E-08 1.835E-08 1.921E-08 1.781E-08
    12.     2.376E-08 2.286E-08 2.349E-08 2.323E-08 2.382E-08 2.296E-08 2.356E-08 2.411E-08 2.330E-08 2.386E-08 2.436E-08 2.361E-08
    13.     6.481E-08 6.034E-08 6.273E-08 6.070E-08 6.310E-08 5.875E-08 6.107E-08 6.347E-08 5.911E-08 6.144E-08 6.384E-08 5.947E-08
    14.     3.002E-08 2.797E-08 2.907E-08 2.814E-08 2.924E-08 2.725E-08 2.831E-08 2.941E-08 2.741E-08 2.848E-08 2.958E-08 2.758E-08
    15.     1.003E-07 9.334E-08 9.702E-08 9.384E-08 9.751E-08 9.073E-08 9.433E-08 9.798E-08 9.123E-08 9.482E-08 9.846E-08 9.172E-08
    16.     3.818E-08 3.555E-08 3.695E-08 3.574E-08 3.713E-08 3.455E-08 3.592E-08 3.732E-08 3.474E-08 3.611E-08 3.750E-08 3.493E-08
    17.     9.844E-09 8.646E-09 9.409E-09 8.988E-09 9.770E-09 8.567E-09 9.339E-09 1.014E-08 8.926E-09 9.696E-09 1.051E-08 9.271E-09

            TOTAL CONCENTRATION (G/M**3)

            3.145E-07 2.960E-07 3.059E-07 2.974E-07 3.074E-07 2.892E-07 2.989E-07 3.089E-07 2.906E-07 3.003E-07 3.104E-07 2.921E-07

***RECEPTOR  NUMBER***

                25.       26.       27.       28.       29.       30.
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DETERM MP CONC FOR3 /3 NE SOURCES AAQS YR 73JDAY 024 ADJ TO  014 DEG      /PSD

      0.

* * * S O U R C E S * * *
       NO      Q (G/SEC)  HP (M) TS (DEG-K)  VS (M/SEC) D(M) VF(M**3/SEC)  R (KM)     S (KM)

        1.       4.33      40.5     305.0       14.5     2.10       0.0   413.200  3086.300
        2.       5.44      22.6     305.0       48.5     0.60       0.0   413.200  3086.300
        3.       5.28      13.8     305.0       11.8     1.40       0.0   408.200  3082.900
        4.       6.25      42.7     315.0       12.5     2.70       0.0   407.900  3071.000
        5.       2.42      19.8     333.0       10.2     0.60       0.0   403.000  3087.000
        6.       3.91      64.3     355.0       22.1     1.00       0.0   398.400  3084.200
        7.       3.96      61.3     333.0       23.0     1.10       0.0   398.400  3084.200
        8.       3.95      52.4     339.0       16.6     0.80       0.0   398.400  3084.200
        9.       5.10      36.6     325.0       11.1     2.40       0.0   396.700  3079.400
       10.       4.20      15.2     305.0       25.9     0.30       0.0   396.700  3079.400
       11.       1.89       5.5     305.0        9.7     0.30       0.0   396.700  3079.400
       12.       4.64      52.4     322.0       13.1     2.40       0.0   396.700  3079.400
       13.       4.56      35.4     305.0       10.3     0.30       0.0   396.700  3079.400
       14.      10.15      12.2     305.0        8.6     0.90       0.0   396.700  3079.400
       15.       2.11      18.6     305.0       22.3     0.20       0.0   396.700  3079.400
       16.       1.89      13.7     305.0        9.7     0.30       0.0   396.700  3079.400
       17.       3.78      26.5     436.0       86.2     0.50       0.0   396.700  3079.400
       18.       2.90       5.2     360.0       41.4     0.40       0.0   396.700  3079.400
       19.       2.32      17.4     352.0       24.8     0.40       0.0   396.700  3079.400
       20.       2.32      52.4     311.0       13.7     1.40       0.0   396.700  3079.400
       21.       5.09      19.8     305.0       51.7     0.30       0.0   396.700  3079.400
       22.       2.89      18.3     342.6       15.0     2.85       0.0   388.950  3047.280
       23.       1.10      38.1     309.3       30.0     1.02       0.0   388.720  3047.320
       24.       0.73      18.3     309.3       30.0     0.82       0.0   388.730  3047.180
       25.       0.01      12.2     505.4        7.6     0.31       0.0   389.180  3047.630

* * * R E C E P T O R S * * *
       NO.    RREC(KM)  SREC(KM)     Z (M)

        1.    388.700  3047.100       0.0
        2.    388.800  3047.100       0.0
        3.    388.900  3047.100       0.0
        4.    388.700  3047.000       0.0
        5.    388.800  3047.000       0.0
        6.    388.700  3046.900       0.0
        7.    388.800  3046.900       0.0
        8.    388.600  3046.800       0.0
        9.    388.700  3046.800       0.0
       10.    388.800  3046.800       0.0
       11.    388.600  3046.700       0.0
       12.    388.700  3046.700       0.0
       13.    388.800  3046.700       0.0
       14.    388.600  3046.600       0.0
       15.    388.700  3046.600       0.0
       16.    388.600  3046.500       0.0
       17.    388.700  3046.500       0.0
       18.    388.500  3046.400       0.0
       19.    388.600  3046.400       0.0
       20.    388.700  3046.400       0.0
       21.    388.500  3046.300       0.0
       22.    388.600  3046.300       0.0
       23.    388.700  3046.300       0.0
       24.    388.500  3046.200       0.0
       25.    388.600  3046.200       0.0
       26.    388.500  3046.100       0.0
       27.    388.600  3046.100       0.0
       28.    388.400  3046.000       0.0
       29.    388.500  3046.000       0.0
       30.    388.600  3046.000       0.0
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[illegible]AGE CONCENTRATIONS FOR  24 HOURS.

   * * * R E C E P T O R   N U M B E R * * *

                  1.        2.        3.        4.        5.        6.        7.        8.        9.        10.       11.       12.

 SOURCE           PARTIAL CONCENTRATIONS (G/M**3)

         1.   2.551E-09 2.387E-09 2.234E-09 2.435E-09 2.280E-09 2.326E-09 2.178E-09 2.373E-09 2.221E-09 2.081E-09 2.267E-09 2.123E-09
         2.   3.739E-09 3.498E-09 3.273E-09 3.570E-09 3.341E-09 3.408E-09 3.191E-09 3.478E-09 3.255E-09 3.049E-09 3.322E-09 3.110E-09
         3.   6.263E-09 6.844E-09 7.479E-09 6.535E-09 7.143E-09 6.825E-09 7.454E-09 6.521E-09 7.123E-09 7.776E-09 6.805E-09 7.431E-09
         4.   3.079E-08 3.192E-08 3.300E-08 3.151E-08 3.259E-08 3.219E-08 3.322E-08 3.179E-08 3.282E-08 3.379E-08 3.243E-08 3.340E-08
         5.   2.813E-08 2.786E-08 2.758E-08 2.794E-08 2.766E-08 2.774E-08 2.747E-08 2.782E-08 2.755E-08 2.727E-08 2.762E-08 2.735E-08
         6.   5.606E-08 5.826E-08 6.053E-08 5.640E-08 5.861E-08 5.674E-08 5.895E-08 5.493E-08 5.708E-08 5.930E-08 5.527E-08 5.742E-08
         7.   5.778E-08 6.006E-08 6.240E-08 5.814E-08 6.041E-08 5.849E-08 6.077E-08 5.662E-08 5.884E-08 6.112E-08 5.696E-08 5.919E-08
         8.   6.089E-08 6.330E-08 6.579E-08 6.126E-08 6.368E-08 6.163E-08 6.405E-08 5.965E-08 6.200E-08 6.443E-08 6.001E-08 6.237E-08
         9.   1.269E-07 1.321E-07 1.374E-07 1.276E-07 1.328E-07 1.283E-07 1.335E-07 1.235E-07 1.290E-07 1.342E-07 1.246E-07 1.297E-07
        10.   1.355E-07 1.413E-07 1.473E-07 1.363E-07 1.421E-07 1.371E-07 1.429E-07 1.322E-07 1.379E-07 1.437E-07 1.330E-07 1.387E-07
        11.   7.890E-08 8.233E-08 8.585E-08 7.937E-08 8.279E-08 7.984E-08 8.325E-08 7.696E-08 8.030E-08 8.371E-08 7.742E-08 8.075E-08
        12.   1.037E-07 1.079E-07 1.122E-07 1.043E-07 1.085E-07 1.048E-07 1.090E-07 1.013E-07 1.054E-07 1.095E-07 1.018E-07 1.059E-07
        13.   1.181E-07 1.230E-07 1.281E-07 1.187E-07 1.237E-07 1.194E-07 1.244E-07 1.152E-07 1.201E-07 1.250E-07 1.159E-07 [illegible]
        14.   3.459E-07 3.607E-07 3.759E-07 3.479E-07 3.627E-07 3.499E-07 3.647E-07 3.374E-07 3.519E-07 3.666E-07 3.394E-07 3.538E-07
        15.   6.477E-08 6.753E-08 7.037E-08 6.514E-08 6.790E-08 6.551E-08 6.827E-08 6.318E-08 6.588E-08 6.863E-08 6.355E-08 6.625E-08
        16.   6.269E-08 6.538E-08 6.813E-08 6.305E-08 6.574E-08 6.341E-08 6.610E-08 6.115E-08 6.377E-08 6.645E-08 6.151E-08 6.413E-08
        17.   1.028E-07 1.071E-07 1.114E-07 1.034E-07 1.076E-07 1.039E-07 1.082E-07 1.003E-07 1.045E-07 1.087E-07 1.009E-07 1.051E-07
        18.   1.222E-07 1.275E-07 1.329E-07 1.229E-07 1.282E-07 1.236E-07 1.289E-07 1.192E-07 1.244E-07 1.296E-07 1.199E-07 1.251E-07
        19.   7.225E-08 7.533E-08 7.848E-08 7.267E-08 7.574E-08 7.308E-08 7.615E-08 7.049E-08 7.349E-08 7.655E-08 7.090E-08 7.390E-08
        20.   5.317E-08 5.536E-08 5.759E-08 5.347E-08 5.565E-08 5.376E-08 5.594E-08 5.191E-08 5.405E-08 5.622E-08 5.220E-08 5.433E-08
        21.   1.532E-07 1.598E-07 1.665E-07 1.541E-07 1.606E-07 1.550E-07 1.615E-07 1.495E-07 1.559E-07 1.624E-07 1.504E-07 1.567E-07
        22.   2.875E-17 1.707E-13 5.366E-14 5.639E-11 2.784E-09 1.268E-08 5.395E-08 1.147E-08 1.190E-07 1.388E-07 8.685E-08 3.045E-07
        23.   2.199E-09 3.016E-11 9.785E-13 8.853E-09 1.457E-09 2.946E-08 2.421E-08 8.988E-07 7.821E-08 1.247E-07 1.194E-06 1.461E-07
        24.   8.247E-09 1.054E-15 0.0       3.687E-07 5.362E-08 8.856E-07 1.862E-07 3.983E-06 1.101E-06 7.453E-07 5.165E-06 1.157E-06
        25.   6.432E-09 1.613E-08 2.145E-08 1.278E-08 8.852E-09 8.105E-09 1.439E-08 7.985E-09 6.069E-09 2.346E-08 4.646E-09 1.025E-08

                  TOTAL CONCENTRATION (G/M**3)

              1.803E-06 1.876E-06 1.956E-06 2.187E-06 1.936E-06 2.743E-06 2.159E-06 6.647E-06 3.122E-06 2.922E-06 8.206E-06 3.445E-06

   * * * R E C E P T O R   N U M B E R * * *

                  13.       14.       15.       16.       17.       18.       19.       20.       21.       22.       23.       24.

 SOURCE           PARTIAL CONCENTRATIONS (G/M**3)

         1.   1.990E-09 2.166E-09 2.030E-09 2.070E-09 1.942E-09 2.112E-09 1.980E-09 1.859E-09 2.019E-09 1.895E-09 1.781E-09 1.932E-09
         2.   2.915E-09 3.173E-09 2.973E-09 3.033E-09 2.844E-09 3.094E-09 2.900E-09 2.722E-09 2.958E-09 2.775E-09 2.607E-09 2.829E-09
         3.   8.108E-09 7.101E-09 7.750E-09 7.406E-09 8.079E-09 7.080E-09 7.722E-09 8.419E-09 7.383E-09 8.049E-09 8.770E-09 7.696E-09
         4.   3.431E-08 3.302E-08 3.393E-08 3.355E-08 3.441E-08 3.318E-08 3.404E-08 3.483E-08 3.368E-08 3.447E-08 3.519E-08 3.412E-08
         5.   2.708E-08 2.743E-08 2.716E-08 2.724E-08 2.697E-08 2.731E-08 2.705E-08 2.676E-08 2.712E-08 2.686E-08 2.659E-08 2.693E-08
         6.   5.964E-08 5.560E-08 5.776E-08 5.593E-08 5.810E-08 5.417E-08 5.627E-08 5.844E-08 5.450E-08 5.660E-08 5.877E-08 5.482E-08
         7.   6.148E-08 5.731E-08 5.954E-08 5.765E-08 5.989E-08 5.583E-08 5.800E-08 6.024E-08 5.617E-08 5.834E-08 6.058E-08 5.650E-08
         8.   6.481E-08 6.038E-08 6.274E-08 6.074E-08 6.311E-08 5.881E-08 6.110E-08 6.348E-08 5.916E-08 6.147E-08 6.385E-08 5.952E-08
         9.   1.348E-07 1.253E-07 1.303E-07 1.259E-07 1.310E-07 1.217E-07 1.266E-07 1.317E-07 1.223E-07 1.273E-07 1.323E-07 1.230E-07
        10.   1.444E-07 1.339E-07 1.394E-07 1.345E-07 1.402E-07 1.298E-07 1.353E-07 1.409E-07 1.306E-07 1.360E-07 1.416E-07 1.313E-07
        11.   8.416E-08 7.788E-08 8.121E-08 7.833E-08 8.166E-08 7.554E-08 7.878E-08 8.210E-08 7.599E-08 7.922E-08 8.254E-08 7.644E-08
        12.   1.101E-07 1.024E-07 1.065E-07 1.029E-07 1.070E-07 9.949E-08 1.035E-07 1.075E-07 1.000E-07 1.040E-07 1.081E-07 1.006E-07
        13.   1.257E-07 1.165E-07 1.214E-07 1.172E-07 1.220E-07 1.131E-07 1.178E-07 1.226E-07 1.137E-07 1.185E-07 1.233E-07 1.144E-07
        14.   3.685E-07 3.413E-07 3.558E-07 3.433E-07 3.577E-07 3.312E-07 3.452E-07 3.596E-07 3.331E-07 3.471E-07 3.615E-07 3.350E-07
        15.   6.899E-08 6.392E-08 6.661E-08 6.428E-08 6.697E-08 6.202E-08 6.464E-08 6.732E-08 6.238E-08 6.500E-08 6.767E-08 6.274E-08
        16.   6.680E-08 6.187E-08 6.448E-08 6.222E-08 6.483E-08 6.003E-08 6.257E-08 6.518E-08 6.038E-08 6.292E-08 6.552E-08 6.072E-08
        17.   1.093E-07 1.015E-07 1.056E-07 1.020E-07 1.062E-07 9.853E-08 1.026E-07 1.067E-07 9.909E-08 1.031E-07 1.073E-07 9.964E-08
        18.   1.303E-07 1.206E-07 1.258E-07 1.213E-07 1.264E-07 1.170E-07 1.220E-07 1.271E-07 1.177E-07 1.227E-07 1.278E-07 1.184E-07
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      19.     7.695E-08 7.131E-08 7.430E-08 7.171E-08 7.469E-08 6.920E-08 7.211E-08 7.509E-08 6.960E-08 7.250E-08 7.548E-08 6.999E-08
      20.     5.650E-08 5.249E-08 5.462E-08 5.277E-08 5.484E-08 5.098E-08 5.306E-08 5.517E-08 5.126E-08 5.333E-08 5.544E-08 5.154E-08
      21.     1.632E-07 1.512E-07 1.576E-07 1.521E-07 1.584E-07 1.468E-07 1.529E-07 1.593E-07 1.476E-07 1.538E-07 1.601E-07 1.485E-07
      22.     1.898E-07 2.535E-07 4.473E-07 4.583E-07 5.360E-07 3.133E-07 6.369E-07 6.194E-07 5.049E-07 7.564E-07 7.057E-07 6.778E-07
      23.     2.901E-07 1.323E-06 2.139E-07 1.314E-06 2.685E-07 2.049E-06 1.236E-06 3.065E-07 2.126E-06 1.125E-06 3.274E-07 2.066E-06
      24.     1.432E-06 5.530E-06 1.130E-06 5.093E-06 1.059E-06 3.655E-06 4.374E-06 9.690E-07 3.819E-06 3.674E-06 8.779E-07 3.831E-06
      25.     2.710E-08 4.747E-09 1.566E-08 7.769E-09 1.869E-08 3.923E-09 1.128E-08 1.916E-08 6.131E-09 1.360E-08 1.843E-08 8.554E-09

               TOTAL CONCENTRATION (G/M**3)

              3.839E-06 8.878E-06 3.644E-06 8.650E-06 3.729E-06 7.739E-06 8.044E-06 3.772E-06 8.183E-06 7.365E-06 3.796E-06 8.320E-06

 * * * R E C E P T O R   N U M B E R * * *

               25.       26.       27.       28.       29.       30.

 SOURCE        PARTIAL CONCENTRATIONS (G/M**3)

       1.     1.815E-09 1.849E-09 1.740E-09 1.885E-09 1.772E-09 1.669E-09
       2.     2.657E-09 2.708E-09 2.546E-09 2.761E-09 2.594E-09 2.443E-09
       3.     8.386E-09 8.020E-09 8.733E-09 7.669E-09 8.354E-09 9.091E-09
       4.     3.485E-08 3.450E-08 3.517E-08 3.416E-08 3.483E-08 3.543E-08
       5.     2.667E-08 2.674E-08 2.648E-08 2.682E-08 2.656E-08 2.629E-08
       6.     5.693E-08 5.515E-08 5.726E-08 5.342E-08 5.548E-08 5.759E-08
       7.     5.868E-08 5.684E-08 5.902E-08 5.506E-08 5.718E-08 5.936E-08
       8.     6.183E-08 5.988E-08 6.219E-08 5.798E-08 6.023E-08 6.255E-08
       9.     1.279E-07 1.237E-07 1.286E-07 1.195E-07 1.243E-07 1.292E-07
      10.     1.368E-07 1.320E-07 1.375E-07 1.274E-07 1.328E-07 1.382E-07
      11.     7.966E-08 7.688E-08 8.010E-08 7.416E-08 7.731E-08 8.053E-08
      12.     1.045E-07 1.011E-07 1.051E-07 9.775E-08 1.016E-07 1.056E-07
      13.     1.191E-07 1.150E-07 1.197E-07 1.110E-07 1.156E-07 1.203E-07
      14.     3.490E-07 3.369E-07 3.509E-07 3.252E-07 3.388E-07 3.528E-07
      15.     6.535E-08 6.309E-08 6.570E-08 6.089E-08 6.344E-08 6.604E-08
      16.     6.326E-08 6.107E-08 6.360E-08 5.893E-08 6.141E-08 6.394E-08
      17.     1.037E-07 1.002E-07 1.042E-07 9.677E-08 1.007E-07 1.047E-07
      18.     1.234E-07 1.191E-07 1.240E-07 1.149E-07 1.198E-07 1.247E-07
      19.     7.289E-08 7.039E-08 7.328E-08 6.794E-08 7.077E-08 7.366E-08
      20.     5.361E-08 5.182E-08 5.388E-08 5.007E-08 5.210E-08 5.415E-08
      21.     1.546E-07 1.493E-07 1.554E-07 1.441E-07 1.501E-07 1.562E-07
      22.     8.253E-07 8.028E-07 8.832E-07 6.485E-07 8.821E-07 9.386E-07
      23.     9.960E-07 1.943E-06 8.845E-07 1.874E-06 1.793E-06 7.894E-07
      24.     3.076E-06 3.694E-06 2.564E-06 2.464E-06 3.462E-06 2.149E-06
      25.     1.438E-08 1.032E-08 1.414E-08 6.713E-09 1.115E-08 1.355E-08

               TOTAL CONCENTRATION (G/M**3)

              6.717E-06 8.196E-06 6.161E-06 6.681E-06 7.903E-06 5.715E-06
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DETERM  PBCONC FOR 1/3 NE SOURCES AAUS YR 73JDAY 024 ADJ TO  014 DEG

         0.

 * * * S O U R C E S * * *
        NO      Q (G/SEC)  HP (M) TS (DEG-K)  VS (M/SEC) D(M) VF(M**3/SEC)  R (KM)     S (KM)

         1.       1.21      46.3     309.0      19.0     1.80      0.0   393.800   3096.300
         2.       1.60      38.1     342.0      14.2     2.40      0.0   389.500   3067.900
         3.       1.88      38.1     344.0      20.2     2.40      0.0   389.500   3067.900
         4.       0.19      22.9     305.0       9.9     0.90      0.0   389.500   3067.900
         5.       0.04      22.9     305.0       8.5     1.20      0.0   389.500   3067.900
         6.       5.34      30.5     372.0      36.4     1.20      0.0   394.700   3069.600
         7.       5.34       8.2     305.0      12.1     0.90      0.0   394.700   3069.600
         8.       6.36       8.1     305.0      11.4     1.00      0.0   394.700   3069.600
         9.       2.30      18.9     339.0      37.0     1.30      0.0   415.200   308C.000
        10.       3.08      16.8     344.0       9.6     2.00      0.0   415.200   3080.000
        11.       0.89      18.3     305.0      20.8     0.70      0.0   398.300   3075.500
        12.       0.12      30.5     305.0      23.0     0.50      0.0   398.300   3075.500
        13.       1.59      32.3     305.0      15.8     2.10      0.0   398.300   3075.500
        14.       0.03      32.3     305.0      12.1     0.80      0.0   398.300   3075.500
        15.       0.15      10.7     305.0      10.3     0.80      0.0   398.300   3075.5CC
        16.       2.85      19.2     305.0       7.1     2.90      0.0   415.300   3063.300
        17.       2.94      27.1     348.0      11.3     0.90      0.0   418.700   3083.600
        18.       2.90      30.5     305.0      35.9     0.90      0.0   409.900   3086.900
        19.       1.87      24.4     327.0      11.7     0.50      0.0   398.400   3085.300
        20.       1.82      12.2     305.0       0.0     0.0       0.0   398.400   3085.300
        21.       3.11      61.0     305.0      10.6     2.10      0.0   406.900   3085.100
        22.       2.25      25.6     341.0      25.4     1.50      0.0   416.000   3069.000
        23.       4.38      36.6     305.0      11.3     1.50      0.0   408.300   3082.700
        24.       3.71      42.7     354.0      13.3     0.90      0.0   408.300   3082.700
        25.       3.71      42.7     329.0       8.7     1.80      0.0   408.300   3082.700

 * * * R E C E P T O R S * * *
       NO.    RREC(KM)  SREC(KM)      Z (M)

        1.    387.400   3043.900       0.0
        2.    387.50C   3043.900       0.0
        3.    387.60C   3043.900       0.0
        4.    387.70C   3073.900       0.0
        5.    387.80C   3043.900       0.0
        6.    387.90C   3043.900       0.0
        7.    388.00C   3043.900       0.0
        8.    388.100   3043.900       0.0
        9.    388.200   3043.900       0.0
       10.    388.300   3043.900       0.0
       11.    388.40C   3043.900       0.0
       12.    388.500   3043.900       0.0
       13.    367.400   3043.800       0.0
       14.    387.50C   3043.800       0.0
       15.    387.600   3043.800       0.0
       16.    387.70C   3043.800       0.0
       17.    387.80C   3043.800       0.0
       18.    387.900   3043.800       0.0
       19.    388.0CC   3043.800       0.0
       20.    388.100   3043.800       0.0
       21.    388.200   3043.800       0.0
       22.    388.30C   3043.800       0.0
       23.    388.40C   3043.800       0.0
       24.    388.50C   3043.800       0.0

 * * * M E T E O R O L O G Y * * *
       NO.   THETA(DEG)     U (M/SEC)   KST      HL (M)   T (DEG-K)    P (MB)
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AVERAGE CONCENTRATIONS FCR  24 HOURS.
***R E C E P T O R   N U M B E R***

                 1.        2.        3.        4.        5.        6.        7.        8.        9.        10.       11.       12.
SOURCE       PARTIAL CONCENTRATIONS (G/M**3)

     1.      2.471E-08 2.407E-08 2.341E-08 3.594E-08 2.204E-08 2.132E-08 2.059E-08 1.985E-08 1.911E-08 1.835E-08 1.760E-08 1.684E-08
     2.      4.524E-08 4.040E-08 3.586E-08 0.0       2.776E-08 2.427E-08 2.120E-08 1.858E-08 1.645E-08 1.485E-08 1.386E-08 1.355E-08
     3.      5.014E-08 4.475E-08 3.968E-08 0.0       3.066E-08 2.677E-08 2.333E-08 2.039E-08 1.797E-08 1.611E-08 1.488E-08 1.434E-08
     4.      7.470E-09 6.667E-09 5.914E-09 0.0       4.581E-09 4.017E-09 3.536E-09 3.150E-09 2.873E-09 2.729E-09 2.746E-09 2.957E-09
     5.      1.651E-09 1.473E-09 1.307E-09 0.0       1.012E-09 8.878E-10 7.811E-10 6.951E-10 6.330E-10 5.997E-10 6.010E-10 6.444E-10
     6.      1.203E-07 1.259E-07 1.321E-07 0.0       1.460E-07 1.537E-07 1.618E-07 1.703E-07 1.792E-07 1.883E-07 1.977E-07 2.073E-07
     7.      1.762E-07 1.847E-07 1.940E-07 0.0       2.151E-07 2.269E-07 2.393E-07 2.524E-07 2.661E-07 2.803E-07 2.951E-07 3.103E-07
     8.      2.106E-07 2.208E-07 2.319E-07 0.0       2.571E-07 2.712E-07 2.860E-07 3.017E-07 3.181E-07 3.351E-07 3.527E-07 3.709E-07
     9.      9.820E-09 9.918E-09 1.000E-08 4.273E-08 1.013E-08 1.017E-08 1.019E-08 1.020E-08 1.020E-08 1.018E-08 1.014E-08 1.009E-08
    10.      1.344E-08 1.358E-08 1.369E-08 5.293E-08 1.386E-08 1.392E-08 1.395E-08 1.397E-08 1.396E-08 1.393E-08 1.388E-08 1.381E-08
    11.      1.412E-08 1.399E-08 1.386E-08 1.002E-07 1.366E-08 1.359E-08 1.355E-08 1.354E-08 1.357E-08 1.364E-08 1.374E-08 1.390E-08
    12.      1.613E-09 1.597E-09 1.583E-09 1.138E-08 1.560E-09 1.552E-09 1.547E-09 1.546E-09 1.549E-09 1.556E-09 1.568E-09 1.586E-09
    13.      2.699E-08 2.672E-08 2.648E-08 1.495E-07 2.610E-08 2.597E-08 2.590E-08 2.588E-08 2.593E-08 2.604E-08 2.624E-08 2.653E-08
    14.      4.383E-10 4.340E-10 4.301E-10 3.062E-09 4.238E-10 4.217E-10 4.204E-10 4.202E-10 4.209E-10 4.229E-10 4.261E-10 4.308E-10
    15.      2.657E-09 2.631E-09 2.608E-09 1.923E-08 2.570E-09 2.558E-09 2.550E-09 2.549E-09 2.554E-09 2.567E-09 2.587E-09 2.616E-09
    16.      4.735E-10 4.283E-10 3.868E-10 0.0       3.137E-10 2.818E-10 2.526E-10 2.261E-10 2.019E-10 1.800E-10 1.602E-10 1.422E-10
    17.      9.190E-09 9.357E-09 9.516E-09 4.575E-08 9.808E-09 9.939E-09 1.006E-08 1.017E-08 1.027E-08 1.035E-08 1.043E-08 1.049E-08
    18.      4.025E-09 4.321E-09 4.633E-09 2.093E-08 5.309E-09 5.674E-09 6.057E-09 6.456E-09 6.874E-09 7.309E-09 7.763E-09 8.234E-09
    19.      2.820E-08 2.924E-08 3.032E-08 3.990E-09 3.259E-08 3.378E-08 3.499E-08 3.623E-08 3.750E-08 3.879E-08 4.010E-08 4.142E-08
    20.      3.270E-08 3.391E-08 3.517E-08 4.658E-09 3.782E-08 3.921E-08 4.064E-08 4.209E-08 4.358E-08 4.510E-08 4.664E-08 4.821E-08
    21.      1.335E-08 1.396E-08 1.458E-08 2.351E-08 1.583E-08 1.646E-08 1.709E-08 1.771E-08 1.834E-08 1.895E-08 1.956E-08 2.016E-08
    22.      5.813E-13 6.927E-13 8.252E-13 5.250E-20 1.170E-12 1.393E-12 1.656E-12 1.966E-12 2.332E-12 2.763E-12 3.271E-12 3.868E-12
    23.      4.279E-09 4.647E-09 5.042E-09 5.008E-08 5.923E-09 6.411E-09 6.930E-09 7.482E-09 8.068E-09 8.687E-09 9.343E-09 1.003E-08
    24.      3.477E-09 3.776E-09 4.057E-09 4.015E-08 4.812E-09 5.207E-09 5.629E-09 6.076E-09 6.552E-09 7.055E-09 7.587E-09 8.147E-09
    25.      3.462E-09 3.760E-09 4.080E-09 3.933E-08 4.791E-09 5.185E-09 5.605E-09 6.050E-09 6.524E-09 7.024E-09 7.553E-09 8.111E-09

             TOTAL CONCENTRATION (G/M**3)

             8.046E-07 8.210E-07 8.466E-07 ~~4.434E-07~~ 8.898E-07 9.193E-07 9.520E-07 5.877E-07 1.026E-06 1.068E-06 1.113E-06 1.161E-06
***R E C E P T O R   N U M B E R***

                 13.       14.       15.       16.       17.       18.       19.       20.       21.       22.       23.       24.
SOURCE       PARTIAL CONCENTRATIONS (G/M**3)

     1.      2.457E-08 2.394E-08 2.328E-08 2.260E-08 2.190E-08 2.119E-08 2.046E-08 1.972E-08 1.898E-08 1.823E-08 1.748E-08 1.672E-08
     2.      4.456E-08 3.979E-08 3.531E-08 3.115E-08 2.734E-08 2.391E-08 2.089E-08 1.833E-08 1.624E-08 1.469E-08 1.374E-08 1.347E-08
     3.      4.939E-08 4.407E-08 3.908E-08 3.444E-08 3.020E-08 2.637E-08 2.300E-08 2.012E-08 1.774E-08 1.594E-08 1.475E-08 1.425E-08
     4.      7.352E-09 6.561E-09 5.819E-09 5.131E-09 4.508E-09 3.956E-09 3.485E-09 3.108E-09 2.841E-09 2.706E-09 2.730E-09 2.948E-09
     5.      1.625E-09 1.450E-09 1.286E-09 1.134E-09 9.964E-10 8.742E-10 7.697E-10 6.859E-10 6.258E-10 5.944E-10 5.975E-10 6.425E-10
     6.      1.211E-07 1.268E-07 1.331E-07 1.399E-07 1.471E-07 1.549E-07 1.630E-07 1.715E-07 1.804E-07 1.895E-07 1.989E-07 2.084E-07
     7.      1.774E-07 1.860E-07 1.955E-07 2.058E-07 2.168E-07 2.287E-07 2.412E-07 2.543E-07 2.680E-07 2.823E-07 2.970E-07 3.122E-07
     8.      2.120E-07 2.223E-07 2.337E-07 2.460E-07 2.592E-07 2.733E-07 2.883E-07 3.039E-07 3.203E-07 3.374E-07 3.550E-07 3.731E-07
     9.      9.859E-09 9.946E-09 1.002E-08 1.008E-08 1.012E-08 1.015E-08 1.016E-08 1.016E-08 1.015E-08 1.011E-08 1.007E-08 1.000E-08
    10.      1.350E-08 1.361E-08 1.371E-08 1.379E-08 1.385E-08 1.389E-08 1.391E-08 1.391E-08 1.389E-08 1.384E-08 1.378E-08 1.369E-08
    11.      1.401E-08 1.388E-08 1.375E-08 1.365E-08 1.357E-08 1.351E-08 1.348E-08 1.348E-08 1.352E-08 1.360E-08 1.372E-08 1.388E-08
    12.      1.600E-09 1.585E-09 1.571E-09 1.555E-09 1.549E-09 1.543E-09 1.539E-09 1.535E-09 1.543E-09 1.552E-09 1.565E-09 1.584E-09
    13.      2.677E-08 2.652E-08 2.629E-08 2.609E-08 2.593E-08 2.582E-08 2.576E-08 2.576E-08 2.583E-08 2.597E-08 2.619E-08 2.650E-08
    14.      4.348E-10 4.306E-10 4.268E-10 4.236E-10 4.210E-10 4.192E-10 4.182E-10 4.182E-10 4.194E-10 4.217E-10 4.253E-10 4.304E-10
    15.      2.636E-09 2.610E-09 2.588E-09 2.569E-09 2.553E-09 2.542E-09 2.537E-09 2.538E-09 2.545E-09 2.559E-09 2.582E-09 2.614E-09
    16.      4.049E-10 3.654E-10 3.293E-10 2.962E-10 2.660E-10 2.384E-10 2.132E-10 1.904E-10 1.697E-10 1.510E-10 1.340E-10 1.187E-10
    17.      9.289E-09 9.450E-09 9.601E-09 9.743E-09 9.876E-09 9.998E-09 1.011E-08 1.021E-08 1.030E-08 1.038E-08 1.044E-08 1.049E-08
    18.      4.162E-09 4.464E-09 4.783E-09 5.120E-09 5.473E-09 5.845E-09 6.235E-09 6.641E-09 7.066E-09 7.507E-09 7.967E-09 8.445E-09
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   19.     2.837E-08 2.942E-08 3.050E-08 3.162E-08 3.277E-08 3.396E-08 3.518E-08 3.642E-08 3.768E-08 3.897E-08 4.027E-08 4.160E-08
   20.     3.289E-08 3.411E-08 3.538E-08 3.669E-08 3.804E-08 3.943E-08 4.085E-08 4.231E-08 4.380E-08 4.531E-08 4.685E-08 4.842E-08
   21.     1.359E-08 1.420E-08 1.482E-08 1.544E-08 1.607E-08 1.669E-08 1.732E-08 1.794E-08 1.856E-08 1.917E-08 1.977E-08 2.036E-08
   22.     6.985E-13 8.320E-13 9.903E-13 1.179E-12 1.401E-12 1.665E-12 1.976E-12 2.342E-12 2.774E-12 3.281E-12 3.877E-12 4.576E-12
   23.     4.452E-09 4.833E-09 5.242E-09 5.681E-09 6.149E-09 6.650E-09 7.184E-09 7.749E-09 8.349E-09 8.982E-09 9.652E-09 1.036E-08
   24.     3.618E-09 3.927E-09 4.258E-09 4.615E-09 4.995E-09 5.402E-09 5.834E-09 6.293E-09 6.780E-09 7.294E-09 7.837E-09 8.409E-09
   25.     3.603E-09 3.911E-09 4.241E-09 4.595E-09 4.974E-09 5.379E-09 5.809E-09 6.266E-09 6.751E-09 7.262E-09 7.803E-09 8.372E-09

           TOTAL CONCENTRATION (G/M**3)

           8.072E-07 8.242E-07 8.445E-07 8.680E-07 8.947E-07 9.246E-07 9.576E-07 9.935E-07 1.033E-06 1.074E-06 1.119E-06 1.167E-06
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DETERM PB CONC FOR 2/3 NE SOURCES AAQS YR 73JDAY 024 ADJ TO  014 DEG

      0.

* * * S O U R C E S * * *
        NO      Q (G/SEC)  HP (M) TS (DEG-K)  VS (M/SEC) D(M) VF(M**3/SEC)  R (KM)     S (KM)

        1.        3.71       36.6     335.0        9.1      2.40        0.0   408.300  3082.600
        2.        2.06       36.6     333.0       14.7      2.30        0.0   408.300  3082.700
        3.        2.12       42.7     331.0       16.2      2.80        0.0   408.200  3082.700
        4.        2.60       39.3     356.0        8.8      1.20        0.0   409.500  3079.500
        5.        2.60       39.3     333.0        6.9      2.30        0.0   409.500  3079.500
        6.        5.61       50.3     305.0       40.6      0.70        0.0   409.500  3079.500
        7.        1.61       39.3     311.0        9.3      2.30        0.0   409.500  3079.500
        8.        1.52       39.9     305.0       10.8      2.40        0.0   409.500  3079.500
        9.        2.88       39.9     305.0        6.0      1.20        0.0   409.500  3079.500
       10.        4.07       15.2     353.0       16.5      0.50        0.0   409.500  3079.500
       11.        2.02       24.4     336.0       21.3      1.50        0.0   403.700  3079.000
       12.        2.84        9.1     305.0      111.0      0.30        0.0   407.900  3071.000
       13.        3.23       24.4     328.0        5.0      2.30        0.0   398.400  3084.200
       14.        1.81       49.5     305.0       16.3      1.80        0.0   398.400  3084.200
       15.        4.50       61.0     344.0        9.8      2.60        0.0   396.700  3079.400
       16.        1.71       61.0     344.0        9.8      2.60        0.0   396.700  3079.400
       17.        3.88       49.7     305.0       28.7      0.90        0.0   405.600  3079.400

* * * R E C E P T O R S * * *
        NO.    RREC(KM)  SREC(KM)     Z (M)

        1.    387.400  3043.900       0.0
        2.    387.500  3043.900       0.0
        3.    387.600  3043.900       0.0
        4.    387.700  3073.900       0.0
        5.    387.800  3043.900       0.0
        6.    387.900  3043.900       0.0
        7.    388.000  3043.900       0.0
        8.    388.100  3043.900       0.0
        9.    388.200  3043.900       0.0
       10.    388.300  3043.900       0.0
       11.    388.400  3043.900       0.0
       12.    388.500  3043.900       0.0
       13.    387.400  3043.800       0.0
       14.    387.500  3043.800       0.0
       15.    387.600  3043.800       0.0
       16.    387.700  3043.800       0.0
       17.    387.800  3043.800       0.0
       18.    387.900  3043.800       0.0
       19.    388.000  3043.800       0.0
       20.    388.100  3043.800       0.0
       21.    388.200  3043.800       0.0
       22.    388.300  3043.800       0.0
       23.    388.400  3043.800       0.0
       24.    388.500  3043.800       0.0

* * * M E T E O R O L O G Y * * *
        NO.  THETA(DEG)     U (M/SEC)  KST     HL (M)   T (DEG-K)   P (MB)

        1.       80.           1.0       4      401.      289.0     1013.0

* * * R E C E P T O R   N U M B E R * * *
               1.      2.      3.      4.      5.      6.      7.      8.      9.     10.     11.     12.

SOURCE      PARTIAL CONCENTRATIONS (G/M**3)
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AVERAGE CONCENTRATIONS FOR  24 HOURS.
***RECEPTOR  NUMBER***

                1.        2.        3.        4.        5.        6.        7.        8.        9.       10.       11.       12.

SOURCE      PARTIAL CONCENTRATIONS (G/M**3)

     1.     3.707E-09 4.024E-09 4.363E-09 3.932E-08 5.118E-09 5.534E-09 5.977E-09 6.447E-09 6.946E-09 7.472E-09 8.029E-09 8.614E-09
     2.     1.960E-09 2.128E-09 2.309E-09 2.049E-08 2.711E-09 2.934E-09 3.171E-09 3.423E-09 3.690E-09 3.973E-09 4.273E-09 4.588E-09
     3.     2.067E-09 2.242E-09 2.430E-09 1.834E-08 2.847E-09 3.077E-09 3.321E-09 3.580E-09 3.854E-09 4.143E-09 4.449E-09 4.770E-09
     4.     1.659E-09 1.547E-09 1.445E-09 5.228E-08 1.260E-09 1.194E-09 1.130E-09 1.076E-09 1.031E-09 9.965E-10 9.717E-10 9.570E-10
     5.     1.650E-09 1.539E-09 1.437E-09 4.900E-08 1.261E-09 1.188E-09 1.124E-09 1.070E-09 1.026E-09 9.910E-10 9.662E-10 9.515E-10
     6.     3.369E-09 3.141E-09 2.934E-09 1.082E-07 2.577E-09 2.427E-09 2.297E-09 2.187E-09 2.097E-09 2.027E-09 1.977E-09 1.947E-09
     7.     1.027E-09 9.572E-10 8.938E-10 3.148E-08 7.847E-10 7.390E-10 6.992E-10 6.656E-10 6.379E-10 6.163E-10 6.009E-10 5.917E-10
     8.     9.702E-10 9.047E-10 8.448E-10 2.987E-08 7.416E-10 6.984E-10 6.608E-10 6.290E-10 6.028E-10 5.825E-10 5.679E-10 5.592E-10
     9.     1.843E-09 1.718E-09 1.604E-09 6.042E-08 1.409E-09 1.327E-09 1.255E-09 1.195E-09 1.145E-09 1.107E-09 1.079E-09 1.063E-09
    10.     3.331E-09 3.104E-09 2.898E-09 1.101E-07 2.541E-09 2.392E-09 2.261E-09 2.151E-09 2.060E-09 1.989E-09 1.938E-09 1.907E-09
    11.     1.594E-08 1.667E-08 1.741E-08 7.250E-08 1.886E-08 1.957E-08 2.028E-08 2.096E-08 2.163E-08 2.228E-08 2.290E-08 2.350E-08
    12.     2.280E-08 2.288E-08 2.289E-08 1.154E-16 2.275E-08 2.259E-08 2.238E-08 2.211E-08 2.178E-08 2.140E-08 2.098E-08 2.050E-08
    13.     4.530E-08 4.695E-08 4.869E-08 5.885E-10 5.240E-08 5.437E-08 5.641E-08 5.850E-08 6.066E-08 6.287E-08 6.512E-08 6.742E-08
    14.     2.106E-08 2.182E-08 2.262E-08 2.674E-10 2.433E-08 2.523E-08 2.617E-08 2.713E-08 2.812E-08 2.913E-08 3.016E-08 3.121E-08
    15.     6.794E-08 7.069E-08 7.352E-08 4.860E-08 7.941E-08 8.245E-08 8.554E-08 8.865E-08 9.180E-08 9.495E-08 9.812E-08 1.013E-07
    16.     2.588E-08 2.692E-08 2.800E-08 1.851E-08 3.024E-08 3.140E-08 3.258E-08 3.376E-08 3.496E-08 3.616E-08 3.737E-08 3.857E-08
    17.     8.874E-09 9.577E-09 1.032E-08 1.108E-07 1.191E-08 1.276E-08 1.366E-08 1.458E-08 1.554E-08 1.653E-08 1.755E-08 1.861E-08

            TOTAL CONCENTRATION (G/M**3)

            2.294E-07 2.368E-07 2.446E-07 ~~2.706E-07~~ 2.612E-07 2.699E-07 2.789E-07 2.881E-07 2.976E-07 3.072E-07 3.170E-07 3.270E-07

***RECEPTOR  NUMBER***

               13.       14.       15.       16.       17.       18.       19.       20.       21.       22.       23.       24.

SOURCE      PARTIAL CONCENTRATIONS (G/M**3)

     1.     3.857E-09 4.184E-09 4.534E-09 4.910E-09 5.310E-09 5.738E-09 6.193E-09 6.674E-09 7.184E-09 7.722E-09 8.290E-09 8.887E-09
     2.     2.039E-09 2.213E-09 2.400E-09 2.600E-09 2.814E-09 3.043E-09 3.287E-09 3.545E-09 3.819E-09 4.108E-09 4.414E-09 4.736E-09
     3.     2.150E-09 2.331E-09 2.525E-09 2.732E-09 2.953E-09 3.189E-09 3.440E-09 3.705E-09 3.985E-09 4.280E-09 4.592E-09 4.919E-09
     4.     1.580E-09 1.475E-09 1.379E-09 1.292E-09 1.215E-09 1.148E-09 1.090E-09 1.042E-09 1.003E-09 9.747E-10 9.560E-10 9.474E-10
     5.     1.572E-09 1.467E-09 1.371E-09 1.285E-09 1.209E-09 1.142E-09 1.084E-09 1.036E-09 9.978E-10 9.693E-10 9.506E-10 9.420E-10
     6.     3.208E-09 2.995E-09 2.800E-09 2.625E-09 2.469E-09 2.333E-09 2.216E-09 2.118E-09 2.040E-09 1.983E-09 1.945E-09 1.928E-09
     7.     9.777E-10 9.124E-10 8.531E-10 7.995E-10 7.519E-10 7.101E-10 6.743E-10 6.444E-10 6.206E-10 6.028E-10 5.912E-10 5.858E-10
     8.     9.240E-10 8.623E-10 8.063E-10 7.556E-10 7.106E-10 6.711E-10 6.372E-10 6.090E-10 5.865E-10 5.697E-10 5.587E-10 5.536E-10
     9.     1.755E-09 1.638E-09 1.531E-09 1.435E-09 1.350E-09 1.275E-09 1.211E-09 1.157E-09 1.114E-09 1.083E-09 1.062E-09 1.052E-09
    10.     3.171E-09 2.958E-09 2.765E-09 2.590E-09 2.434E-09 2.297E-09 2.180E-09 2.082E-09 2.003E-09 1.944E-09 1.905E-09 1.887E-09
    11.     1.671E-08 1.694E-08 1.767E-08 1.839E-08 1.911E-08 1.981E-08 2.051E-08 2.118E-08 2.184E-08 2.247E-08 2.308E-08 2.366E-08
    12.     2.275E-08 2.278E-08 2.275E-08 2.266E-08 2.252E-08 2.232E-08 2.207E-08 2.176E-08 2.140E-08 2.099E-08 2.053E-08 2.003E-08
    13.     4.556E-08 4.723E-08 4.898E-08 5.081E-08 5.271E-08 5.469E-08 5.673E-08 5.883E-08 6.099E-08 6.319E-08 6.545E-08 6.775E-08
    14.     2.118E-08 2.195E-08 2.275E-08 2.359E-08 2.447E-08 2.538E-08 2.632E-08 2.728E-08 2.827E-08 2.928E-08 3.031E-08 3.135E-08
    15.     6.837E-08 7.112E-08 7.396E-08 7.687E-08 7.984E-08 8.288E-08 8.595E-08 8.906E-08 9.219E-08 9.532E-08 9.847E-08 1.016E-07
    16.     2.604E-08 2.709E-08 2.817E-08 2.928E-08 3.041E-08 3.156E-08 3.273E-08 3.392E-08 3.511E-08 3.630E-08 3.750E-08 3.870E-08
    17.     9.166E-09 9.934E-09 1.066E-08 1.145E-08 1.228E-08 1.315E-08 1.405E-08 1.498E-08 1.595E-08 1.695E-08 1.798E-08 1.904E-08

            TOTAL CONCENTRATION (G/M**3)

            2.305E-07 2.380E-07 2.459E-07 2.541E-07 2.626E-07 2.713E-07 2.804E-07 2.896E-07 2.991E-07 3.087E-07 3.186E-07 3.286E-07
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DETERM PB CONC FOR 3/3 NE SOURCES AAQS YR 73JUAY 024 ADJ TO  014 DEG     /PSD

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* * * S O U R C E S * * *
    NO     Q (G/SEC)  HP (M) TS (DEG-K)  VS (M/SEC) D(M) VF(M**3/SEC)  R (KM)    S (KM)

     1.      4.33      40.5     305.0      14.5      2.10     0.0    413.200  3086.300
     2.      5.44      22.6     305.0      48.5      0.60     0.0    413.200  3086.300
     3.      5.28      13.8     305.0      11.8      1.40     0.0    408.200  3082.900
     4.      6.25      42.7     315.0      12.5      2.70     0.0    407.900  3071.000
     5.      2.42      19.8     333.0      10.2      0.60     0.0    403.000  3087.000
     6.      3.91      64.3     355.0      22.1      1.00     0.0    398.400  3084.200
     7.      3.96      61.3     333.0      23.0      1.10     0.0    398.400  3084.200
     8.      3.95      52.4     339.0      16.6      0.80     0.0    398.400  3084.200
     9.      5.10      36.6     325.0      11.1      2.40     0.0    396.700  3079.400
    10.      4.20      15.2     305.0      25.9      0.30     0.0    396.700  3079.400
    11.      1.89       5.5     305.0       9.7      0.30     0.0    396.700  3079.400
    12.      4.64      52.4     322.0      13.1      2.40     0.0    396.700  3079.400
    13.      4.56      35.4     305.0      10.3      0.30     0.0    396.700  3079.400
    14.     10.15      12.2     305.0       8.6      0.90     0.0    396.700  3079.400
    15.      2.11      18.6     305.0      22.3      0.20     0.0    396.700  3079.400
    16.      1.89      13.7     305.0       9.7      0.30     0.0    396.700  3079.400
    17.      3.78      26.5     436.0      86.2      0.50     0.0    396.700  3079.400
    18.      2.90       5.2     380.0      41.4      0.40     0.0    396.700  3079.400
    19.      2.32      17.4     352.0      24.8      0.40     0.0    396.700  3079.400
    20.      2.32      52.4     311.0      13.7      1.40     0.0    396.700  3079.400
    21.      5.09      19.8     305.0      51.7      0.33     0.0    388.95C  3047.280
    22.      2.89      18.3     342.6      15.0      2.85     0.0    388.720  3047.320
    23.      1.10      38.1     309.3      30.0      1.02     0.0    388.730  3047.180
    24.      0.73      18.3     309.3      30.0      0.82     0.0    389.180  3047.63C
    25.      0.01      12.2     505.4       7.6      0.31

* * * R E C E P T O R S * * *
      NO.    RREC(KM)  SREC(KM)      Z (M)

       1.    387.40C   3043.900       0.0
       2.    387.50C   3043.900       0.0
       3.    387.6CC   3043.900       0.0
       4.    387.70C   3073.900       0.0
       5.    387.80C   3043.900       0.0
       6.    387.90C   3043.900       0.0
       7.    388.00C   3043.900       0.0
       8.    388.100   3043.900       0.0
       9.    388.20C   3043.900       0.0
      10.    388.30C   3043.900       0.0
      11.    388.40C   3043.900       0.0
      12.    388.50C   3043.800       0.0
      13.    387.40C   3043.800       0.0
      14.    387.5CC   3043.800       0.0
      15.    387.60C   3043.800       0.0
      16.    387.70C   3043.800       0.0
      17.    387.80C   3043.800       0.0
      18.    387.90C   3043.800       0.0
      19.    388.0CC   3043.800       0.0
      20.    388.100   3043.800       0.0
      21.    388.200   3043.800       0.0
      22.    388.30C   3043.800       0.0
      23.    388.40C   3043.800       0.0
      24.    388.50C   3043.800

* * * M E T E O R O L O G Y * * *
      NO.   THETA(DEG)    U (M/SEC)  KST     HL (M)   T (DEG-K)    P (MB)
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 AVERAGE CONCENTRATIONS FOR  24 HOURS.
 ***RECEPTOR NUMBER***
               1.        2.        3.        4.        5.        6.        7.        8.        9.        10.       11.       12.
 SOURCE     PARTIAL CONCENTRATIONS (G/M**3)
     1.     1.439E-09 1.364E-09 1.299E-09 4.853E-08 1.193E-09 1.154E-09 1.122E-09 1.100E-09 1.087E-09 1.082E-09 1.087E-09 1.100E-09
     2.     2.104E-09 1.994E-09 1.898E-09 7.275E-08 1.742E-09 1.683E-09 1.637E-09 1.603E-09 1.583E-09 1.576E-09 1.582E-09 1.601E-09
     3.     7.702E-09 8.351E-09 9.046E-09 8.189E-08 1.058E-08 1.142E-08 1.232E-08 1.326E-08 1.426E-08 1.531E-08 1.642E-08 1.758E-08
     4.     3.305E-08 3.315E-08 3.317E-08 1.244E-16 3.296E-08 3.273E-08 3.241E-08 3.202E-08 3.155E-08 3.100E-08 3.038E-08 2.969E-08
     5.     2.557E-08 2.534E-08 2.510E-08 3.015E-12 2.462E-08 2.438E-08 2.414E-08 2.391E-08 2.368E-08 2.346E-08 2.326E-08 2.306E-08
     6.     4.196E-08 4.347E-08 4.505E-08 5.117E-10 4.843E-08 5.022E-08 5.207E-08 5.397E-08 5.592E-08 5.791E-08 5.994E-08 6.200E-08
     7.     4.322E-08 4.477E-08 4.641E-08 5.324E-10 4.990E-08 5.175E-08 5.366E-08 5.562E-08 5.763E-08 5.968E-08 6.178E-08 6.390E-08
     8.     4.543E-08 4.708E-08 4.880E-08 5.751E-10 5.250E-08 5.445E-08 5.648E-08 5.856E-08 6.069E-08 6.288E-08 6.510E-08 6.737E-08
     9.     9.051E-08 9.422E-08 9.806E-08 7.678E-08 1.061E-07 1.102E-07 1.145E-07 1.187E-07 1.231E-07 1.275E-07 1.319E-07 1.363E-07
    10.     9.581E-08 9.983E-08 1.040E-07 9.833E-08 1.127E-07 1.173E-07 1.219E-07 1.267E-07 1.315E-07 1.364E-07 1.414E-07 1.465E-07
    11.     5.564E-08 5.800E-08 6.043E-08 5.744E-08 6.556E-08 6.824E-08 7.099E-08 7.379E-08 7.666E-08 7.957E-08 8.254E-08 8.556E-08
    12.     7.425E-08 7.728E-08 8.039E-08 5.925E-08 8.689E-08 9.025E-08 9.367E-08 9.712E-08 1.006E-07 1.041E-07 1.077E-07 1.112E-07
    13.     8.369E-08 8.718E-08 9.078E-08 8.422E-08 9.832E-08 1.022E-07 1.063E-07 1.103E-07 1.145E-07 1.187E-07 1.229E-07 1.272E-07
    14.     2.444E-07 2.547E-07 2.653E-07 2.504E-07 2.876E-07 2.993E-07 3.112E-07 3.233E-07 3.357E-07 3.482E-07 3.610E-07 3.739E-07
    15.     4.580E-08 4.772E-08 4.970E-08 4.695E-08 5.387E-08 5.604E-08 5.826E-08 6.053E-08 6.283E-08 6.517E-08 6.755E-08 6.996E-08
    16.     4.429E-08 4.615E-08 4.808E-08 4.556E-08 5.212E-08 5.423E-08 5.639E-08 5.859E-08 6.084E-08 6.311E-08 6.543E-08 6.778E-08
    17.     7.318E-08 7.620E-08 7.932E-08 6.302E-08 8.584E-08 8.923E-08 9.268E-08 9.619E-08 9.975E-08 1.033E-07 1.070E-07 1.106E-07
    18.     8.630E-08 8.994E-08 9.370E-08 8.664E-08 1.016E-07 1.058E-07 1.100E-07 1.143E-07 1.187E-07 1.232E-07 1.278E-07 1.324E-07
    19.     5.113E-08 5.326E-08 5.548E-08 5.186E-08 6.012E-08 6.254E-08 6.501E-08 6.752E-08 7.009E-08 7.269E-08 7.532E-08 7.799E-08
    20.     3.790E-08 3.946E-08 4.107E-08 3.517E-08 4.443E-08 4.616E-08 4.793E-08 4.973E-08 5.154E-08 5.337E-08 5.522E-08 5.707E-08
    21.     1.084E-07 1.130E-07 1.177E-07 1.106E-07 1.275E-07 1.326E-07 1.379E-07 1.432E-07 1.486E-07 1.542E-07 1.597E-07 1.654E-07
    22.     3.609E-07 4.842E-07 5.893E-07 0.0       7.182E-07 7.910E-07 9.129E-07 1.074E-06 1.225E-06 1.300E-06 1.238E-06 1.007E-06
    23.     3.806E-07 3.991E-07 4.256E-07 0.0       6.140E-07 7.681E-07 9.054E-07 9.696E-07 9.148E-07 7.350E-07 4.902E-07 2.780E-07
    24.     3.519E-07 3.808E-07 3.999E-07 0.0       5.458E-07 7.077E-07 8.973E-07 1.054E-06 1.096E-06 9.565E-07 6.705E-07 3.818E-07
    25.     1.800E-09 2.431E-09 2.976E-09 0.0       3.511E-09 3.644E-09 3.982E-09 4.755E-09 6.053E-09 7.768E-09 9.640E-09 1.115E-08

            TOTAL CONCENTRATION (G/M**3)

            2.387E-06 2.609E-06 2.812E-06 1.271E-06 3.386E-06 3.832E-06 4.340E-06 4.783E-06 4.983E-06 4.801E-06 4.273E-06 3.606E-06
 ***RECEPTOR NUMBER***
              13.       14.       15.       16.       17.       18.       19.       20.       21.       22.       23.       24.
 SOURCE     PARTIAL CONCENTRATIONS (G/M**3)
     1.     1.386E-09 1.317E-09 1.257E-09 1.206E-09 1.163E-09 1.128E-09 1.102E-09 1.085E-09 1.077E-09 1.078E-09 1.088E-09 1.107E-09
     2.     2.026E-09 1.925E-09 1.836E-09 1.760E-09 1.697E-09 1.646E-09 1.607E-09 1.582E-09 1.569E-09 1.569E-09 1.583E-09 1.611E-09
     3.     8.005E-09 8.675E-09 9.390E-09 1.015E-08 1.097E-08 1.183E-08 1.274E-08 1.371E-08 1.473E-08 1.580E-08 1.693E-08 1.811E-08
     4.     3.297E-08 3.301E-08 3.296E-08 3.284E-08 3.263E-08 3.234E-08 3.197E-08 3.152E-08 3.100E-08 3.041E-08 2.974E-08 2.901E-08
     5.     2.540E-08 2.517E-08 2.494E-08 2.470E-08 2.446E-08 2.422E-08 2.398E-08 2.375E-08 2.353E-08 2.331E-08 2.311E-08 2.292E-08
     6.     4.220E-08 4.372E-08 4.532E-08 4.698E-08 4.872E-08 5.051E-08 5.237E-08 5.427E-08 5.622E-08 5.820E-08 6.023E-08 6.228E-08
     7.     4.347E-08 4.504E-08 4.669E-08 4.840E-08 5.019E-08 5.205E-08 5.396E-08 5.592E-08 5.793E-08 5.999E-08 6.208E-08 6.420E-08
     8.     4.570E-08 4.736E-08 4.909E-08 5.091E-08 5.281E-08 5.477E-08 5.680E-08 5.888E-08 6.102E-08 6.320E-08 6.542E-08 6.769E-08
     9.     9.108E-08 9.481E-08 9.865E-08 1.026E-07 1.067E-07 1.108E-07 1.150E-07 1.193E-07 1.236E-07 1.280E-07 1.324E-07 1.368E-07
    10.     9.643E-08 1.005E-07 1.046E-07 1.089E-07 1.134E-07 1.179E-07 1.226E-07 1.273E-07 1.321E-07 1.370E-07 1.420E-07 1.470E-07
    11.     5.601E-08 5.837E-08 6.081E-08 6.334E-08 6.595E-08 6.863E-08 7.137E-08 7.417E-08 7.703E-08 7.993E-08 8.290E-08 8.590E-08
    12.     7.472E-08 7.775E-08 8.087E-08 8.405E-08 8.737E-08 9.073E-08 9.413E-08 9.757E-08 1.010E-07 1.045E-07 1.081E-07 1.116E-07
    13.     8.423E-08 8.772E-08 9.133E-08 9.506E-08 9.888E-08 1.028E-07 1.068E-07 1.109E-07 1.150E-07 1.192E-07 1.234E-07 1.277E-07
    14.     2.460E-07 2.563E-07 2.670E-07 2.780E-07 2.893E-07 3.009E-07 3.128E-07 3.249E-07 3.372E-07 3.497E-07 3.625E-07 3.753E-07
    15.     4.609E-08 4.832E-08 5.001E-08 5.207E-08 5.418E-08 5.635E-08 5.857E-08 6.083E-08 6.313E-08 6.546E-08 6.783E-08 7.023E-08
    16.     4.458E-08 4.644E-08 4.837E-08 5.037E-08 5.242E-08 5.453E-08 5.669E-08 5.888E-08 6.112E-08 6.339E-08 6.570E-08 6.804E-08
    17.     7.365E-08 7.668E-08 7.980E-08 8.302E-08 8.633E-08 8.971E-08 9.315E-08 9.665E-08 1.002E-07 1.038E-07 1.074E-07 1.110E-07
    18.     8.686E-08 9.051E-08 9.429E-08 9.820E-08 1.022E-07 1.063E-07 1.106E-07 1.149E-07 1.193E-07 1.238E-07 1.283E-07 1.329E-07
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   19.     5.145E-08 5.360E-08 5.582E-08 5.811E-08 6.046E-08 6.288E-08 6.535E-08 6.786E-C8 7.041E-08 7.300E-08 7.563E-08 7.829E-08
   20.     3.814E-08 3.971E-08 4.131E-08 4.297E-08 4.467E-08 4.641E-08 4.817E-08 4.996E-08 5.177E-08 5.359E-08 5.543E-08 5.727E-08
   21.     1.091E-07 1.137E-07 1.184E-07 1.232E-07 1.282E-07 1.334E-07 1.386E-07 1.439E-07 1.493E-07 1.548E-07 1.604E-07 1.660E-07
   22.     4.087E-07 5.213E-07 6.091E-07 6.687E-07 7.216E-07 8.045E-07 9.375E-07 1.099E-06 1.238E-06 1.295E-06 1.213E-06 9.696E-07
   23.     3.738E-07 3.897E-07 4.237E-07 5.023E-07 6.287E-07 7.759E-07 8.969E-07 9.415E-07 8.715E-07 6.891E-07 4.555E-07 2.597E-07
   24.     3.500E-07 3.699E-07 3.910E-07 4.467E-07 5.588E-07 7.212E-07 8.984E-07 1.032E-06 1.047E-06 8.925E-07 6.159E-07 3.514E-07
   25.     2.009E-09 2.581E-09 3.024E-09 3.283E-09 3.405E-09 3.563E-09 3.988E-09 4.855E-C9 6.195E-09 7.872E-C9 9.613E-09 1.089E-08

            TOTAL CONCENTRATION (G/M**3)

           2.434E-06 2.634E-06 2.830E-06 3.078E-06 3.425E-06 3.875E-06 4.365E-06 4.766E-06 4.912E-06 4.694E-06 4.166E-06 3.527E-06
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DETERM MP LONG FOR E       SOURCES PSD  YR 70JDAY 138 ADJ TO  090 DEG

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* * * S O U R C E S * * *
       NO      Q (G/SEC)  HP (M) TS (DEG-K)  VS (M/SEC) D(M) VF(M**3/SEC)  R (KM)    S (KM)

        1.       2.89      18.3     342.6      15.0     2.85      0.0    388.950  3047.280
        2.       1.10      38.1     308.9      30.0     1.02      0.0    388.720  3047.320
        3.       0.73      18.3     309.3      30.0     0.82      0.0    388.730  3047.180
        4.       0.01      12.2     505.4       7.6     0.31      0.0    389.180  3047.630
        5.       1.28      10.5     358.0       1.7     3.00      0.0    419.800  3047.300
        6.       2.08      10.8     358.0       1.6     4.10      0.0    419.800  3047.300

* * * R E C E P T O R S * * *
       NO.    RREC(KM)  SREC(KM)      Z (M)

        1.    388.600  3047.300       0.0
        2.    388.600  3047.200       0.0
        3.    388.500  3047.350       0.0
        4.    388.500  3047.250       0.0
        5.    388.500  3047.150       0.0
        6.    388.400  3047.300       0.0
        7.    388.400  3047.200       0.0
        8.    388.300  3047.350       0.0
        9.    388.300  3047.250       0.0
       10.    388.300  3047.150       0.0
       11.    388.200  3047.300       0.0
       12.    388.200  3047.200       0.0
       13.    388.100  3047.350       0.0
       14.    388.100  3047.250       0.0
       15.    388.100  3047.150       0.0
       16.    388.000  3047.300       0.0
       17.    388.000  3047.200       0.0
       18.    387.900  3047.350       0.0
       19.    387.900  3047.250       0.0
       20.    387.900  3047.150       0.0
       21.    387.800  3047.300       0.0
       22.    387.800  3047.200       0.0
       23.    387.700  3047.350       0.0
       24.    387.700  3047.250       0.0
       25.    387.700  3047.150       0.0
       26.    387.600  3047.300       0.0
       27.    387.600  3047.200       0.0
       28.    387.500  3047.350       0.0
       29.    387.500  3047.250       0.0
       30.    387.500  3047.150       0.0

* * * M E T E O R O L O G Y * * *
       NO.  THETA(DEG)    U (M/SEC)  KST     HL (M)  T (DEG-K)   P (MB)

        1.      346.         2.6       6     1906.     295.0     1013.0

* * * R E C E P T O R   N U M B E R * * *
                                                                         
                 1.        2.        3.        4.        5.        6.        7.        8.        9.       10.       11.       12.

SOURCE       PARTIAL CONCENTRATIONS (G/M**3)

        1.      0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
        2.      0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
        3.      0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
        4.      0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
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AVERAGE CONCENTRATIONS FOR  24 HOURS.
***R E C E P T O R   N U M B E R***
                1.        2.        3.        4.        5.        6.        7.        8.        9.        10.       11.       12.
SOURCE      PARTIAL CONCENTRATIONS (G/M**3)
      1.    6.147E-07 2.985E-08 1.497E-06 7.384E-07 1.631E-08 2.159E-06 4.387E-07 2.818E-06 1.797E-06 2.015E-07 3.141E-06 1.125E-06
      2.    1.729E-10 1.944E-25 4.084E-07 4.210E-09 1.473E-15 8.040E-07 8.989E-09 1.991E-06 3.714E-07 3.627E-08 1.936E-06 2.050E-07
      3.    1.060E-08 2.674E-06 2.313E-07 4.629E-06 2.509E-06 4.100E-06 8.644E-06 3.068E-06 5.468E-06 5.769E-06 4.416E-06 6.939E-06
      4.    1.355E-09 1.314E-09 6.526E-09 1.332E-09 4.628E-09 4.293E-09 1.170E-09 1.155E-08 2.967E-09 9.842E-10 9.097E-09 2.128E-09
      5.    3.419E-08 3.411E-08 3.407E-08 3.398E-08 3.390E-08 3.386E-08 3.378E-08 3.375E-08 3.367E-08 3.359E-08 3.355E-08 3.347E-08
      6.    5.522E-08 5.508E-08 5.503E-08 5.489E-08 5.476E-08 5.470E-08 5.457E-08 5.451E-08 5.438E-08 5.425E-08 5.419E-08 5.406E-08
            TOTAL CONCENTRATION (G/M**3)

            7.162E-07 2.795E-06 2.232E-06 5.462E-06 2.619E-06 7.157E-06 9.181E-06 7.977E-06 7.727E-06 6.095E-06 9.591E-06 8.359E-06
***R E C E P T O R   N U M B E R***
                13.       14.       15.       16.       17.       18.       19.       20.       21.       22.       23.       24.
SOURCE      PARTIAL CONCENTRATIONS (G/M**3)
      1.    3.492E-06 2.548E-06 6.130E-07 3.543E-06 1.751E-06 3.668E-06 2.885E-06 1.075E-06 3.487E-06 2.081E-06 3.522E-06 2.886E-06
      2.    2.626E-06 1.135E-06 2.735E-07 2.417E-06 5.373E-07 2.639E-06 1.622E-06 3.384E-07 2.377E-06 8.930E-07 2.391E-06 1.736E-06
      3.    3.550E-06 4.565E-06 5.027E-06 3.132E-06 5.047E-06 2.550E-06 3.822E-06 3.869E-06 2.729E-06 3.734E-06 2.016E-06 3.115E-06
      4.    7.650E-09 7.109E-09 1.589E-09 7.461E-09 5.524E-09 4.446E-09 6.908E-09 4.311E-09 4.544E-09 6.164E-09 3.427E-09 4.684E-09
      5.    3.343E-08 3.335E-08 3.327E-08 3.324E-08 3.316E-08 3.312E-08 3.304E-08 3.297E-08 3.293E-08 3.285E-08 3.282E-08 3.274E-08
      6.    5.400E-08 5.387E-08 5.374E-08 5.368E-08 5.356E-08 5.350E-08 5.337E-08 5.325E-08 5.319E-08 5.306E-08 5.301E-08 5.288E-08
            TOTAL CONCENTRATION (G/M**3)

            9.764E-06 8.346E-06 6.002E-06 9.186E-06 7.427E-06 8.949E-06 8.423E-06 5.373E-06 8.684E-06 6.800E-06 8.018E-06 7.827E-06
***R E C E P T O R   N U M B E R***
                25.       26.       27.       28.       29.       30.
SOURCE      PARTIAL CONCENTRATIONS (G/M**3)
      1.    1.399E-06 3.285E-06 2.209E-06 3.303E-06 2.784E-06 1.600E-06
      2.    4.746E-07 2.125E-06 1.085E-06 2.074E-06 1.644E-06 6.261E-07
      3.    2.978E-06 2.456E-06 2.873E-06 1.856E-06 2.542E-06 2.371E-06
      4.    5.368E-09 2.973E-09 4.689E-09 3.469E-09 2.967E-09 4.540E-09
      5.    3.266E-08 3.262E-08 3.255E-08 3.251E-08 3.244E-08 3.237E-08
      6.    5.276E-08 5.270E-08 5.258E-08 5.252E-08 5.240E-08 5.228E-08
            TOTAL CONCENTRATION (G/M**3)

            4.942E-06 7.955E-06 6.256E-06 7.321E-06 7.058E-06 4.686E-06
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DETERM PB CONC FOR       E SOURCES PSD  YR 72JDAY 121 ADJ TO  090 DEG

        D.

* * * S O U R C E S * * *
        NO      Q (G/SEC)  HP (M) TS (DEG-K)  VS (M/SEC) D(M) VF(M**3/SEC)  R (KM)     S (KM)

         1.        2.89      18.3     342.6      15.0      2.85       0.0   388.950  3047.280
         2.        1.10      38.1     308.9      30.0      1.02       0.0   388.720  3047.320
         3.        0.73      18.3     309.3      30.0      0.82       0.0   388.730  3047.180
         4.        0.01      12.2     505.4       7.6      0.31       0.0   389.180  3047.630
         5.        1.28      10.5     358.0       1.7      3.00       0.0   419.800  3047.300
         6.        2.08      10.8     358.0       1.6      4.10       0.0   419.800  3047.300

* * * R E C E P T O R S * * *
        NO.     RREC(KM)  SREC(KM)      Z (M)

         1.    386.200  3048.000       0.0
         2.    386.200  3047.900       0.0
         3.    386.200  3047.800       0.0
         4.    386.200  3047.700       0.0
         5.    386.200  3047.600       0.0
         6.    386.200  3047.500       0.0
         7.    386.200  3047.400       0.0
         8.    386.200  3047.300       0.0
         9.    386.200  3047.200       0.0
        10.    386.200  3047.100       0.0
        11.    386.200  3047.000       0.0
        12.    386.200  3046.900       0.0
        13.    386.200  3046.800       0.0
        14.    386.200  3046.700       0.0
        15.    386.200  3046.600       0.0
        16.    386.100  3048.000       0.0
        17.    386.100  3047.900       0.0
        18.    386.100  3047.800       0.0
        19.    386.100  3047.700       0.0
        20.    386.100  3047.600       0.0
        21.    386.100  3047.500       0.0
        22.    386.100  3047.400       0.0
        23.    386.100  3047.300       0.0
        24.    386.100  3047.200       0.0
        25.    386.100  3047.100       0.0
        26.    386.100  3047.000       0.0
        27.    386.100  3046.900       0.0
        28.    386.100  3046.800       0.0
        29.    386.100  3046.700       0.0
        30.    386.100  3046.600       0.0

* * * M E T E O R O L O G Y * * *
        NO.  THETA(DEG)    U (M/SEC)  KST      HL (M)   T (DEG-K)    P (MB)

         1.        70.       3.6        4      1739.      293.0      1013.0

* * * R E C E P T O R   N U M B E R * * *

               1.         2.         3.         4.         5.         6.         7.         8.         9.         10.        11.        12.

SOURCE        PARTIAL CONCENTRATIONS (G/M**3)

         1.    0.0        0.0        2.237E-25 1.733E-22 6.868E-20 1.415E-17 1.621E-15 1.059E-13 4.060E-12 9.607E-11 1.426E-09 1.384E-08
         2.    0.0        0.0        3.759E-25 4.625E-22 2.599E-19 6.851E-17 9.173E-15 6.456E-13 2.478E-11 5.504E-10 7.241E-09 5.919E-08
         3.    0.0        0.0        0.0       2.044E-26 3.424E-23 2.491E-20 8.617E-18 1.471E-15 1.288E-13 6.196E-12 1.675E-10 2.692E-09
         4.    1.150E-22 1.943E-20 1.935E-18 1.161E-16 4.414E-15 1.073E-13 1.741E-12 1.912E-11 1.449E-10 7.821E-10 3.040E-09 8.729E-09
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AVERAGE CONCENTRATIONS FOR  24 HOURS.
***RECEPTOR  NUMBER***

               1.         2.         3.         4.         5.         6.         7.         8.         9.        10.        11.        12.

SOURCE         PARTIAL CONCENTRATIONS (G/M**3)

     1.    1.609E-07 1.553E-07 2.148E-07 3.937E-07 7.783E-07 1.393E-06 2.082E-06 2.530E-06 2.520E-06 2.089E-06 1.498E-06 1.024E-06
     2.    7.395E-08 6.685E-08 1.004E-07 2.046E-07 4.255E-07 7.604E-07 1.090E-06 1.234E-06 1.129E-06 8.683E-07 6.276E-07 4.992E-07
     3.    1.808E-07 9.959E-08 5.983E-08 7.180E-08 1.433E-07 3.172E-07 6.358E-07 1.048E-06 1.360E-06 1.386E-06 1.114E-06 7.556E-07
     4.    2.840E-09 5.313E-09 8.686E-09 1.192E-08 1.363E-08 1.292E-08 1.010E-08 6.909E-09 4.859E-09 4.055E-09 4.054E-09 4.534E-09
     5.    6.612E-08 6.755E-08 6.888E-08 7.008E-08 7.118E-08 7.217E-08 7.306E-08 7.385E-08 7.454E-08 7.513E-08 7.563E-08 7.603E-08
     6.    1.062E-07 1.084E-07 1.106E-07 1.125E-07 1.142E-07 1.158E-07 1.172E-07 1.185E-07 1.195E-07 1.205E-07 1.213E-07 1.219E-07

           TOTAL CONCENTRATION (G/M**3)

           5.908E-07 5.030E-07 5.631E-07 8.645E-07 1.546E-06 2.671E-06 4.008E-06 5.011E-06 5.208E-06 4.543E-06 3.440E-06 2.481E-06
***RECEPTOR  NUMBER***

              13.        14.        15.        16.        17.        18.        19.        20.        21.        22.        23.        24.

SOURCE         PARTIAL CONCENTRATIONS (G/M**3)

     1.    7.516E-07 6.493E-07 6.604E-07 1.465E-07 1.531E-07 2.251E-07 4.184E-07 8.083E-07 1.404E-06 2.052E-06 2.470E-06 2.469E-06
     2.    4.747E-07 5.109E-07 5.729E-07 6.476E-08 6.574E-08 1.059E-07 2.159E-07 4.343E-07 7.507E-07 1.054E-06 1.187E-06 1.096E-06
     3.    5.314E-07 4.613E-07 4.852E-07 1.476E-07 7.834E-08 5.435E-08 7.472E-08 1.522E-07 3.268E-07 6.310E-07 1.011E-06 1.293E-06
     4.    5.505E-09 6.972E-09 7.999E-09 2.913E-09 5.298E-09 8.451E-09 1.142E-08 1.299E-08 1.240E-08 9.857E-09 6.850E-09 4.798E-09
     5.    7.634E-08 7.653E-08 7.662E-08 6.588E-08 6.730E-08 6.861E-08 6.981E-08 7.090E-08 7.188E-08 7.276E-08 7.354E-08 7.423E-08
     6.    1.224E-07 1.227E-07 1.228E-07 1.058E-07 1.080E-07 1.101E-07 1.120E-07 1.138E-07 1.153E-07 1.167E-07 1.180E-07 1.190E-07

           TOTAL CONCENTRATION (G/M**3)

           1.962E-06 1.828E-06 1.934E-06 5.334E-07 4.779E-07 5.725E-07 9.022E-07 1.593E-06 2.681E-06 3.936E-06 4.866E-06 5.056E-06
***RECEPTOR  NUMBER***

              25.        26.        27.        28.        29.        30.

SOURCE         PARTIAL CONCENTRATIONS (G/M**3)

     1.    2.074E-06 1.513E-06 1.044E-06 7.629E-07 6.442E-07 6.443E-07
     2.    8.552E-07 6.212E-07 4.862E-07 4.495E-07 4.755E-07 5.302E-07
     3.    1.322E-06 1.081E-06 7.463E-07 5.207E-07 4.376E-07 4.469E-07
     4.    3.905E-09 3.798E-09 4.158E-09 4.924E-09 6.194E-09 7.451E-09
     5.    7.482E-08 7.532E-08 7.572E-08 7.602E-08 7.622E-08 7.630E-08
     6.    1.200E-07 1.208E-07 1.214E-07 1.219E-07 1.222E-07 1.223E-07

           TOTAL CONCENTRATION (G/M**3)

           4.449E-06 3.415E-06 2.478E-06 1.936E-06 1.762E-06 1.827E-06
```

```
DETERM KEENTOWN CONC PSD/AAQS JYR73 JDAY88 ADJ THRU KEENTOWN (TO 154 DEG)

        0.

* * * S O U R C E S * * *
      NO      Q (G/SEC)  HP (M) TS (DEG-K)  VS (M/SEC) D(M) VF(M**3/SEC)  R (KM)    S (KM)

      1.       2.89      18.3     342.6       15.0      2.85       0.0   388.950  3047.280
      2.       1.10      38.1     305.5       30.0      1.02       0.0   388.720  3047.320
      3.       0.73      18.3     305.3       30.0      0.82       0.0   388.730  3047.180
      4.       0.00      12.2     505.4        7.6      0.31       0.0   389.180  3047.630

* * * R E C E P T O R S * * *
      NO.   RREC(KM) SREC(KM)     Z (M)

      1.   387.500  3049.000      0.0
      2.   387.600  3049.000      0.0
      3.   387.700  3049.000      0.0

* * * M E T E O R O L O G Y * * *
      NO.  THETA(DEG)    U (M/SEC)  KST     HL (M)  T (DEG-K)   P (MB)

      1.      153.        4.6        4      1442.     293.0     1013.0

* * * R E C E P T O R   N U M B E R * * *

            1.        2.        3.

SOURCE      PARTIAL CONCENTRATIONS (G/M**3)

      1.    7.830E -9 5.667E -8 3.085E -7
      2.    2.328E -7 9.571E -7 2.681E -6
      3.    7.237E -7 2.062E -6 4.071E -6
      4.    3.044E-18 1.371E-16 5.132E-15

            TOTAL CONCENTRATION (G/M**3)

          9.643E -7 3.075E -6 7.061E -6

* * * M E T E O R O L O G Y * * *
      NO.  THETA(DEG)    U (M/SEC)  KST     HL (M)  T (DEG-K)   P (MB)

      2.      148.        4.1        4      1410.     293.0     1013.0

* * * R E C E P T O R   N U M B E R * * *

            1.        2.        3.

SOURCE      PARTIAL CONCENTRATIONS (G/M**3)

      1.    4.808E -7 1.463E -6 3.321E -6
      2.    3.025E -6 5.080E -6 5.691E -6
      3.    4.566E -6 5.543E -6 4.552E -6
      4.    4.371E-14 6.871E-13 9.065E-12

            TOTAL CONCENTRATION (G/M**3)

          8.071E -6 1.209E -5 1.356E -5
```

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 AVERAGE CONCENTRATIONS FOR  24 HOURS.
***R E C E P T O R   N U M B E R***
               1.        2.        3.
SOURCE         PARTIAL CONCENTRATIONS (G/M**3)
     1.        1.378E -6 1.529E -6 1.624E -6
     2.        1.025E -6 1.222E -6 1.521E -6
     3.        1.094E -6 1.358E -6 1.572E -6
     4.        1.197E -8 1.318E -8 1.252E -8
               TOTAL CONCENTRATION (G/M**3)

               3.509E -6 4.122E -6 4.729E -6
```

APPENDIX E

SO_2 & NO_x MODELING DATA

```
ISTAB=   7     7     7     6     5     5     5     4     4     4     4     4     4     4     4     4     4     4     5     6     5     5     6     6     6
AWS=   1.0   1.0   1.0   5.1   4.1   3.6   4.1   4.6   3.6   5.7   7.2   7.2   6.7   7.2   7.2   6.7   6.7   4.1   2.6   2.6   3.1   1.0   2.1   2.1
TEMP=  285.  282.  283.  283.  283.  281.  282.  282.  283.  285.  286.  287.  286.  286.  287.  286.  286.  283.  281.  282.  283.  281.  280.  280.
AFV=   230.  230.  230.  200.  180.  180.  200.  190.  200.  190.  180.  160.  140.  140.  160.  150.  160.  150.  150.  140.  170.  170.  210.  210.
AFVR=  233.  232.  232.  201.  184.  177.  196.  189.  201.  192.  180.  159.  141.  145.  165.  153.  162.  154.  154.  144.  171.  175.  207.  207.
HLH1=   809.   803.   797.   791.   784.   778.   772.    83.   190.   298.   406.   514.
        621.   729.   729.   729.   729.   732.   739.   746.   753.   760.   767.   774.
HLH2=   548.   548.   548.   548.   548.   548.   548.   569.   595.   622.   649.   676.
        702.   729.   729.   729.   729.   688.   603.   518.   433.   348.   263.   176.
                                         M A X   H O U R L Y                           M A X   2 4 - H O U R

        DAY        RATIO    CONCENTRATION  DIRECTION  DISTANCE(KM)  HOUR    CONCENTRATION  DIRECTION  DISTANCE(KM)
        343       10.313     2.423761E-05     20          0.80        9      2.350203E-06     16          0.80


JYR=74 IMO=12 JDAY=344.
ISTAB=   7     7     6     6     5     6     7     6     5     4     3     2     2     3     3     3     4     5     6     6     5     5     5     4
AWS=   1.0   1.0   2.1   3.1   3.6   3.1   1.0   3.6   4.1   4.6   3.6   3.6   3.6   4.1   3.6   3.6   3.1   2.1   2.6   3.1   2.1   2.1   3.1   3.6
TEMP=  278.  277.  278.  277.  278.  277.  276.  277.  280.  283.  286.  287.  289.  290.  291.  291.  289.  285.  283.  281.  281.  282.  283.  283.
AFV=   210.  210.  180.  200.  180.  200.  200.  190.  220.  210.  220.  230.  160.  220.  200.  240.  240.  220.  230.  170.  210.  250.  250.  260.
AFVP=  214.  215.  178.  197.  165.  203.  202.  193.  222.  206.  223.  226.  156.  220.  205.  241.  238.  221.  228.  167.  210.  246.  254.  264.
HLH1=   781.   788.   795.   802.   809.   816.   822.    97.   226.   355.   484.   613.
        742.   871.   871.   871.   871.   880.   899.   919.   938.   957.   976.   996.
HLH2=   178.   178.   178.   176.   176.   178.   178.   255.   358.   461.   563.   666.
        768.   871.   871.   871.   871.   819.   711.   602.   494.   385.   277.   996.
                                         M A X   H O U R L Y                           M A X   2 4 - H O U R

        DAY        RATIO    CONCENTRATION  DIRECTION  DISTANCE(KM)  HOUR    CONCENTRATION  DIRECTION  DISTANCE(KM)
        344        9.524     3.684574E-05     24          0.30       16      3.868619E-06     22          0.30


JYR=74 IMO=12 JDAY=345.
ISTAB=   5     5     5     6     6     6     6     5     4     3     3     3     3     4     4     3     3     4     5     6     5     6     6     6
AWS=   2.6   3.6   2.1   2.6   3.1   2.6   2.1   3.6   3.6   4.6   4.6   4.6   4.1   4.6   4.1   2.1   1.0   3.1   2.6   2.6   4.6   2.1   2.1   2.6
TEMP=  284.  284.  283.  283.  283.  283.  283.  283.  285.  290.  293.  294.  294.  295.  296.  295.  296.  291.  291.  290.  289.  289.  289.  285.
AFV=   270.  270.  240.  270.  240.  240.  270.  250.  250.  270.  310.  300.  320.  300.  290.   70.   70.   10.   10.  340.  330.  310.  310.  290.
AFVR=  271.  268.  240.  272.  245.  240.  273.  252.  249.  271.  310.  300.  318.  301.  286.   72.   67.   14.   13.  344.  335.  311.  315.  294.
HLH1=  1015.  1034.  1053.  1073.  1092.  1111.  1130.   140.   327.   515.   702.   890.
       1077.  1265.  1265.  1265.  1265.  1264.  1262.  1259.  1257.  1255.  1252.  1250.
HLH2=   168.   168.   168.   168.   168.   168.   168.   289.   452.   614.   777.   940.
       1102.  1265.  1265.  1265.  1265.  1264.  1012.   841.   669.   498.   326.   155.
                                         M A X   H O U R L Y                           M A X   2 4 - H O U R

        DAY        RATIO    CONCENTRATION  DIRECTION  DISTANCE(KM)  HOUR    CONCENTRATION  DIRECTION  DISTANCE(KM)
        345       13.256     6.503299E-05      7          0.50       17      4.905849E-06      7          0.50


JYR=74 IMO=12 JDAY=346.
ISTAB=   6     5     5     5     6     5     5     4     4     4     4     4     4     4     4     4     4     4     4     4     4     4     4     4
AWS=   2.6   4.1   4.1   4.1   3.1   3.1   2.1   3.1   5.1   5.1   6.2   6.2   5.1   6.7   5.1   4.1   3.6   3.1   2.1   3.6   8.7   4.1   4.6   2.6
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DETERM EMP SO2 CONC FOR SACC  JVK72 JDAY175 ADJ THRU MAX ENERGY

      0.

* * * S O U R C E S * * *
      NO      Q (G/SEC)  HP (M) TS (DEG-K)  VS (M/SEC) D(M) VF(M**3/SEC)  R (KM)     S (KM)

      1.       1.08       18.3     342.6      15.0      2.85        0.0   388.950  3047.280
      2.       0.14       18.3     304.9      30.0      0.82        0.0   388.730  3047.180
      3.       0.35       12.2     505.4       7.6      0.31        0.0   389.180  3047.630

* * * R E C E P T O R S * * *
      NO.    RREC(KM)   SREC(KM)     Z (M)

      1.    389.500   3047.600       0.0
      2.    389.500   3047.500       0.0
      3.    389.500   3047.400       0.0
      4.    389.600   3047.600       0.0
      5.    389.600   3047.500       0.0
      6.    389.600   3047.400       0.0
      7.    389.700   3047.500       0.0
      8.    389.700   3047.400       0.0
      9.    389.700   3047.300       0.0
     10.    389.800   3047.500       0.0
     11.    389.800   3047.400       0.0
     12.    389.800   3047.300       0.0
     13.    389.900   3047.500       0.0
     14.    389.900   3047.400       0.0
     15.    389.900   3047.300       0.0
     16.    390.000   3047.400       0.0
     17.    390.000   3047.300       0.0
     18.    390.000   3047.200       0.0
     19.    390.100   3047.400       0.0
     20.    390.100   3047.300       0.0
     21.    390.100   3047.200       0.0
     22.    390.100   3047.100       0.0
     23.    390.200   3047.400       0.0
     24.    390.200   3047.300       0.0
     25.    390.200   3047.200       0.0
     26.    390.200   3047.100       0.0
     27.    390.300   3047.300       0.0
     28.    390.300   3047.200       0.0
     29.    390.300   3047.100       0.0
     30.    390.300   3047.000       0.0
```

```
AVERAGE CONCENTRATIONS FOR  24 HOURS.
* * * R E C E P T O R   N U M B E R * * *
               1.        2.        3.        4.        5.        6.        7.        8.        9.        10.       11.       12.
SOURCE         PARTIAL CONCENTRATIONS (G/M**3)
    1.         2.773E-20 2.830E-14 3.419E-10 3.015E-17 1.450E-12 2.035E-09 2.500E-11 7.028E-09 8.851E-08 1.870E-10 1.646E-08 1.162E-07
    2.         1.296E-15 1.582E-14 9.789E-11 2.713E-17 3.735E-13 3.984E-10 3.555E-12 1.055E-09 3.472E-08 1.856E-11 2.121E-09 3.909E-08
    3.         5.054E-06 7.111E-06 3.822E-07 3.134E-06 1.089E-05 1.459E-06 9.293E-06 2.626E-06 5.963E-07 6.831E-06 4.374E-06 9.239E-07
               TOTAL CONCENTRATION (G/M**3)

               5.054E-06 7.111E-06 3.826E-07 3.134E-06 1.089E-05 1.461E-06 9.293E-06 2.634E-06 7.196E-07 6.831E-06 4.393E-06 1.079E-06
* * * R E C E P T O R   N U M B E R * * *
               13.       14.       15.       16.       17.       18.       19.       20.       21.       22.       23.       24.
SOURCE         PARTIAL CONCENTRATIONS (G/M**3)
    1.         7.913E-10 2.985E-08 1.434E-07 4.444E-08 1.647E-07 4.257E-07 5.825E-08 1.796E-07 3.597E-07 1.276E-06 7.137E-08 1.924E-07
    2.         6.465E-11 3.547E-09 4.222E-08 5.205E-09 4.430E-08 1.636E-07 6.950E-09 4.558E-08 1.533E-07 2.835E-07 8.677E-09 4.627E-08
    3.         4.942E-06 5.043E-06 1.307E-06 4.756E-06 2.037E-06 6.184E-07 4.124E-06 2.632E-06 7.808E-07 3.989E-07 3.476E-06 2.880E-06
               TOTAL CONCENTRATION (G/M**3)

               4.843E-06 5.077E-06 1.493E-06 4.805E-06 2.246E-06 1.208E-06 4.194E-06 2.857E-06 1.334E-06 1.959E-06 3.556E-06 3.118E-06
* * * R E C E P T O R   N U M B E R * * *
               25.       26.       27.       28.       29.       30.
SOURCE         PARTIAL CONCENTRATIONS (G/M**3)
    1.         3.920E-07 1.114E-06 2.031E-07 3.707E-07 9.725E-07 1.863E-06
    2.         1.437E-07 2.593E-07 4.652E-08 1.349E-07 2.384E-07 3.110E-07
    3.         1.134E-06 4.462E-07 2.844E-06 1.524E-06 5.316E-07 3.169E-07
               TOTAL CONCENTRATION (G/M**3)

               1.659E-06 1.819E-06 3.094E-06 2.029E-06 1.742E-06 2.493E-06
```

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DETERM CPM SO2 CONC FOR SACC  JYR72 JDAY174  NO WD ADJ

       0.

 * * * S O U R C E S * * *
       NO      Q (G/SEC)   HP (M)  TS (DEG-K)   VS (M/SEC)  D(M)  VF(M**3/SEC)   R (KM)     S (KM)

        1.       1.08        18.3     342.6        15.0      2.65       0.0     388.950  3047.280
        2.       0.14        18.3     304.9        30.0      0.82       0.0     388.730  3047.180
        3.       0.35        12.2     305.4         7.6      0.31       0.0     389.180  3047.630

 * * * R E C E P T O R S * * *
       NO.    RREC(KM)   SREC(KM)    Z (M)

        1.    391.000   3047.600      0.0
        2.    391.000   3047.700      0.0
        3.    391.000   3047.600      0.0
        4.    391.000   3047.500      0.0
        5.    391.000   3047.400      0.0
        6.    391.000   3047.300      0.0
        7.    391.000   3047.200      0.0
        8.    391.000   3047.100      0.0
        9.    391.000   3047.000      0.0
       10.    391.100   3047.700      0.0
       11.    391.100   3047.500      0.0
       12.    391.100   3047.300      0.0
       13.    391.100   3047.100      0.0
       14.    389.200   3047.300      0.0
       15.    389.400   3047.600      0.0
       16.    389.400   3047.200      0.0
       17.    389.600   3047.700      0.0
       18.    389.600   3047.500      0.0
       19.    389.600   3047.300      0.0
       20.    389.800   3047.600      0.0
       21.    389.800   3047.400      0.0
       22.    389.800   3047.200      0.0
       23.    390.000   3047.700      0.0
       24.    390.000   3047.500      0.0
       25.    390.000   3047.300      0.0
       26.    390.200   3047.600      0.0
       27.    390.200   3047.400      0.0
       28.    390.200   3047.200      0.0
       29.    390.400   3047.700      0.0
       30.    390.400   3047.500      0.0
```

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AVERAGE CONCENTRATIONS FOR  24 HOURS.

***RECEPTOR  NUMBER***

                  1.         2.         3.         4.         5.         6.         7.         8.         9.        10.        11.        12.

SOURCE        PARTIAL CONCENTRATIONS (G/M**3)

      1.      2.083E-07 3.168E-07 4.339E-07 7.109E-07 1.223E-06 1.613E-06 1.631E-06 1.326E-06 8.546E-07 3.370E-07 7.330E-07 1.562E-06
      2.      5.164E-08 1.014E-07 1.484E-07 1.649E-07 2.076E-07 3.049E-07 3.703E-07 3.645E-07 3.068E-07 1.076E-07 1.575E-07 2.907E-07
      3.      8.867E-07 1.356E-06 1.515E-06 1.293E-06 8.319E-07 4.290E-07 2.990E-07 2.629E-07 1.613E-07 1.264E-06 1.213E-06 4.378E-07

               TOTAL CONCENTRATION (G/M**3)

              1.147E-06 1.774E-06 2.097E-06 2.169E-06 2.262E-06 2.347E-06 2.300E-06 1.953E-06 1.323E-06 1.709E-06 2.103E-06 2.291E-06

***RECEPTOR  NUMBER***

                 13.        14.        15.        16.        17.        18.        19.        20.        21.        22.        23.        24.

SOURCE        PARTIAL CONCENTRATIONS (G/M**3)

      1.      1.311E-06 2.342E-08 1.287E-14 2.394E-07 3.945E-13 2.302E-08 9.755E-07 2.242E-08 4.301E-07 1.483E-06 1.612E-08 2.268E-07
      2.      3.425E-07 3.050E-07 2.831E-12 1.780E-06 5.910E-12 3.532E-08 5.269E-07 1.408E-08 2.852E-07 1.040E-06 6.515E-09 1.497E-07
      3.      2.556E-07 0.0       1.016E-05 0.0       2.797E-06 1.964E-06 1.589E-13 7.187E-06 6.079E-07 6.442E-12 3.046E-06 2.083E-06

               TOTAL CONCENTRATION (G/M**3)

              1.904E-06 3.284E-07 1.016E-05 2.019E-06 2.797E-06 2.023E-06 1.502E-06 7.223E-06 1.323E-06 2.524E-06 3.068E-06 2.459E-06

***RECEPTOR  NUMBER***

                 25.        26.        27.        28.        29.        30.

SOURCE        PARTIAL CONCENTRATIONS (G/M**3)

      1.      1.858E-06 1.842E-07 9.587E-07 1.918E-06 1.412E-07 4.570E-07
      2.      4.859E-07 7.619E-08 2.798E-07 6.864E-07 4.083E-08 2.047E-07
      3.      2.217E-07 3.556E-06 7.920E-07 9.944E-08 2.168E-06 1.888E-06

               TOTAL CONCENTRATION (G/M**3)

              2.566E-06 3.816E-06 2.031E-06 2.704E-06 2.350E-06 2.549E-06
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DETERM GPD SO2 CONC FOR SACC   JYR7, JDAY341

        0.

* * * S O U R C E S * * *
     NO.     Q (G/SEC)   HP (M) TS (DEG-K)  VS (M/SEC) D(M) VF(M**3/SEC)  R (KM)    S (KM)

      1.       1.08       19.3      342.6       15.0       2.85      0.0   388.950  3047.280
      2.       0.14       19.3      304.9       30.0       0.82      0.0   388.730  3047.180
      3.       0.35       12.2      505.4        7.6       0.31      0.0   389.190  3047.630

* * * R E C E P T O R S * * *
     NO.    RREC(KM)  SREC(KM)     Z (M)

      1.   388.500  3048.700       0.0
      2.   388.600  3048.700       0.0
      3.   388.700  3048.700       0.0
      4.   388.800  3048.700       0.0
      5.   388.900  3048.700       0.0
      6.   389.000  3048.700       0.0
      7.   389.100  3048.700       0.0
      8.   389.200  3048.700       0.0
      9.   389.300  3048.700       0.0
     10.   389.400  3048.700       0.0
     11.   389.500  3048.700       0.0
     12.   389.000  3048.600       0.0
     13.   389.100  3048.600       0.0
388.8 14.  389.000  3048.500       0.0
     15.   389.200  3048.500       0.0
     16.   389.000  3048.400       0.0
     17.   388.600  3048.300       0.0
     18.   389.200  3048.300       0.0
     19.   389.000  3048.200       0.0
     20.   388.800  3048.100       0.0
     21.   389.200  3048.100       0.0
     22.   389.000  3048.000       0.0
     23.   388.900  3047.900       0.0
     24.   389.100  3047.900       0.0
     25.   389.000  3047.800       0.0
     26.   388.700  3047.700       0.0
     27.   388.900  3047.700       0.0
     28.   389.100  3047.700       0.0
     29.   388.800  3047.500       0.0
     30.   389.000  3047.500       0.0
```

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AVERAGE CONCENTRATIONS FOR  24 HOURS.

* * * R E C E P T O R   N U M B E R * * *

               1.         2.         3.         4.         5.         6.         7.         8.         9.        10.        11.        12.

SOURCE      PARTIAL CONCENTRATIONS (G/M**3)

     1.     1.295E-07 1.573E-07 1.842E-07 3.343E-07 5.055E-07 5.754E-07 4.065E-07 1.393E-07 2.040E-08 1.193E-09 2.761E-11 6.028E-07
     2.     1.221E-07 2.446E-07 3.858E-07 3.791E-07 2.329E-07 7.929E-08 1.309E-08 9.641E-10 3.147E-11 4.505E-13 2.907E-15 9.020E-08
     3.     5.745E-08 1.576E-07 2.271E-07 4.231E-07 7.450E-07 6.086E-07 1.416E-06 2.075E-06 1.207E-06 2.263E-07 1.010E-06 5.604E-07

            TOTAL CONCENTRATION (G/M**3)

            3.090E-07 5.595E-07 7.971E-07 1.136E-06 1.483E-06 1.263E-06 1.836E-06 2.215E-06 1.228E-06 2.275E-07 1.012E-06 1.253E-06

* * * R E C E P T O R   N U M B E R * * *

              13.        14.        15.        16.        17.        18.        19.        20.        21.        22.        23.        24.

SOURCE      PARTIAL CONCENTRATIONS (G/M**3)

     1.     4.501E-07 1.200E-22 6.396E-08 4.384E-07 1.987E-07 1.635E-08 2.784E-07 9.651E-08 1.036E-09 9.594E-08 8.181E-08 2.222E-09
     2.     1.891E-08 6.418E-29 1.324E-10 3.775E-08 5.324E-07 5.137E-12 1.290E-08 6.323E-07 1.772E-14 1.488E-09 5.623E-08 3.725E-14
     3.     1.310E-06 7.832E-22 2.831E-06 1.168E-06 2.597E-07 4.116E-06 1.527E-06 6.347E-07 6.279E-06 9.502E-07 1.457E-06 3.174E-06

            TOTAL CONCENTRATION (G/M**3)

            1.779E-06 9.033E-22 2.895E-06 1.644E-06 9.908E-07 4.132E-06 1.818E-06 1.364E-06 6.280E-06 1.048E-06 1.595E-06 3.177E-06

* * * R E C E P T O R   N U M B E R * * *

              25.        26.        27.        28.        29.        30.

SOURCE      PARTIAL CONCENTRATIONS (G/M**3)

     1.     8.313E-09 7.275E-09 1.011E-08 5.371E-13 2.616E-11 1.435E-17
     2.     1.078E-11 1.042E-06 3.626E-09 7.599E-21 1.351E-07 2.055E-25
     3.     1.967E-06 4.824E-07 4.078E-08 3.072E-07 4.443E-09 3.334E-33

            TOTAL CONCENTRATION (G/M**3)

            1.975E-06 1.531E-06 5.451E-08 3.072E-07 1.396E-07 1.435E-17
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                    SALL QUETTE PINE NITROGEN OXIDE EMISSIONS 1965-1975 STAR MET DATA

   SOURCE DATA
   ****************************************************************************************
                                                         ANNUAL SOURCE          STACK DATA
   SOURCE      SOURCE LOCATION        SOURCE AREA        EMISSION RATE
   NUMBER       (KILOMETERS)            SQUARE            (TONS/DAY)          HT   DIAM   VEL   TEMP
   ************HORIZONTAL***VERTICAL*****KILOMETERS*************************************************
      1         386.9      3047.3         0.0          0.0        0.775       18.3  2.8   15.0   343.
      2         385.2      3047.6         0.0          0.0        0.008       12.2  0.3    7.6   505.
   ****************************************************************************************
      4         385.3      3047.3         0.04         0.0        0.005        1.0  0.0    0.0     0.
      5         386.4      3047.5         0.14         0.0        0.004        5.0  0.0    0.0     0.
   ****************************************************************************************
      7         387.1      3047.5         0.14         0.0        0.004        5.0  0.0    0.0     0.
      8         386.4      3047.1         0.14         0.0        0.004        5.0  0.0    0.0     0.
   ****************************************************************************************
     10         387.1      3047.5         0.14         0.0        0.004        5.0  0.0    0.0     0.
     11         386.4      3047.1         0.14         0.0        0.004        5.0  0.0    0.0     0.
   ****************************************************************************************
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SALL GUETTE MINE NITROGEN OXIDE EMISSIONS 1969-1977 STAR SET DATA

RECEPTOR DATA

LOCATIONS TO BE USED AS RECEPTORS IN ADDITION TO THE 192 RECTANGULAR GRID LOCATIONS

   RECEPTOR      X-COORDINATE      Y-COORDINATE
   ********      ************      ************

     193            288.2             3047.5
     194            291.0             3047.5
     195            289.1             3048.7
     196            289.1             3043.9
     197            287.4             3047.5
```

[illegible] FINE NITROGEN OXIDE EMISSIONS 1969-1972 STAR MET DATA

SOURCE CONTRIBUTIONS TO FIVE SELECTED RECEPTORS

ANNUAL – PARTICULATES

MICROGRAMS PER CUBIC METER

SOURCE	RECEPTOR	RECEPTOR	RECEPTOR	RECEPTOR	RECEPTOR
1	22.01 %	84.93 %	65.65 %	80.11 %	45.24 %
2	1.59 %	4.07 %	10.80 %	2.45 %	4.56 %
3	3.04 %	3.99 %	7.55 %	5.61 %	5.62 %
4	0.65 %	2.58 %	4.62 %	2.07 %	2.33 %
5	7.05 %	0.42 %	0.51 %	0.51 %	2.24 %
6	5.17 %	0.44 %	1.13 %	0.54 %	3.37 %
7	3.81 %	0.29 %	1.56 %	0.56 %	5.64 %
8	17.80 %	0.44 %	0.74 %	1.00 %	2.72 %
9	0.56 %	0.54 %	0.37 %	1.07 %	4.76 %
10	4.65 %	1.62 %	0.75 %	1.04 %	5.01 %
11	7.02 %	0.40 %	0.50 %	1.31 %	1.51 %
12	4.64 %	0.41 %	0.58 %	1.17 %	2.41 %
13	3.90 %	0.51 %	0.30 %	1.22 %	5.42 %
BACK-	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %
TOTAL	100.0 %	100.0 %	100.0 %	100.0 %	100.0 %

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